

OLD SERIES, } CONTINUATION OF THE } NEW SERIES
VOL. XIII. } BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB { VOL. V

The Auk

A Quarterly Journal of Ornithology

EDITOR,
J. A. ALLEN

ASSOCIATE EDITOR
C. F. BATCHELDER



VOLUME V
PUBLISHED FOR
The American Ornithologists' Union

NEW YORK
L. S. FOSTER
1888

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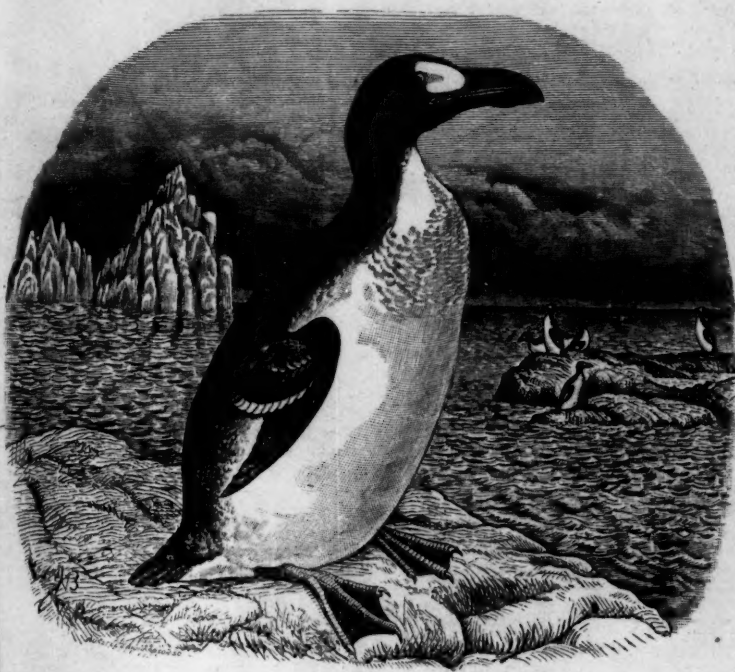
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Vol. V

— JANUARY, 1888 —

No. 1



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'THE AUK' is edited by Mr. J. A. ALLEN, with the assistance of Mr. C. F. BATCHELDER.

TERMS:—\$3.00 a year, including postage, strictly in advance. Single numbers, 75 cents. Free to Honorary Members, and to Active and Associate Members of the A.O.U. not in arrears for dues.

Subscriptions and Advertisements should be addressed to the publisher, L. S. FOSTER, 35 PINE STREET, NEW YORK. N. Y. Foreign Subscribers may obtain 'THE AUK' through GURNEY AND JACKSON, 1 PATERNOSTER ROW, LONDON.

All articles and communications intended for publication, and all books and publications for notice, should be sent to J. A. ALLEN, AMERICAN MUSEUM OF NATURAL HISTORY, CENTRAL PARK, NEW YORK CITY.

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*Zoologist,
Amer. Ornithologists' Union
8-19-24*

THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. V.

JANUARY, 1888.

No. I.

SPENCER FULLERTON BAIRD.

BY ROBERT RIDGWAY.

[Read before the Fifth Meeting of the American Ornithologists' Union.]

MR. PRESIDENT AND MEMBERS OF THE AMERICAN ORNITHOLOGISTS' UNION:—When asked by the worthy President of our Union to prepare a memorial address upon the life and services to ornithology of our great teacher and leader, Professor Baird, it was with many misgivings that the invitation with which I was thus honored was accepted; for, glad as I am to render what tribute I can to the revered memory of a departed and beloved friend, the sense of my own inability to do justice to such a subject has almost deterred me from the attempt.

The preparation of an address which shall consist essentially of new matter is rendered particularly difficult by the circumstance that there has already been published by Professor G. Brown Goode in Bulletin 20 of the United States National Museum * an excellent biography of Professor Baird, giving in

* Department of the Interior: | U. S. National Museum. | —23— | Bulletin | of
the United States National Museum. | No. 20. | — | Published under the direction
of the Smithsonian Institution. | — | Washington: | Government Printing Office. |
1883. |

Comprising—

Bibliographies of American Naturalists. | I. | The Published Writings | of |
Spencer Fullerton Baird, | 1843-1882. | By | George Brown Goode, | Assistant
Director of the National Museum. | Washington: | Government Printing Office,
| 1883. |

An octavo volume of 377 pages, + pages i-xvi (title pages, Prefatory Note, Biographical Sketch, etc.).

detail a history of the principal events and chief results of his life, together with a complete bibliography of his publications. Since the present memoir is intended to deal more particularly with Professor Baird as an ornithologist, the reader is referred for more general information to Professor Goode's admirable 'Biographical Sketch,'* from which are taken most of the chronological data and the occasional quotations in the following prelude to what I have to offer from my own personal knowledge of the life, labors, attainments, and personal qualities of one who in history must hold a place at the head of American naturalists, and in the hearts of those who knew him a place which none other can fill.

Spencer Fullerton Baird was born in Reading, Pennsylvania, February 2, 1823. In 1834 he was sent to a Quaker boarding school at Port Deposit, Maryland, and the following year to the Reading Grammar School. In 1837 he entered Dickinson College, graduating in 1840, at the age of seventeen. The next several years were spent in making natural history studies, and in the study of medicine, including a winter's course of lectures at the College of Physicians and Surgeons, in New York, in 1842, though he never formally completed his medical course. "In 1845 he was chosen professor of natural history in Dickinson College, and in 1846 his duties and emoluments were increased by election to the chair of natural history and chemistry in the same institution. . . . July 5, 1850, he accepted the position of Assistant Secretary of the Smithsonian Institution, and October 3, at the age of twenty-seven years, he entered upon his life work in connection with that foundation—"the increase and diffusion of knowledge among men."

Mr. Goode informs us that "his ancestry upon one side was English, upon the other Scotch and German. His paternal grandfather was Samuel Baird, of Pottstown, Pa., a surveyor by profession, whose wife was Rebecca Potts." The Bairds were from Scotland, while the Potts family came from England to Pennsylvania at the close of the seventeenth century. "His great

* Forming a special chapter of the work before cited, and divided into nine distinct sections, as follows: I. Outline of his public career. II. Honors and dignities. III. Ancestry and development of character. IV. Early friendships and their influences. V. Analysis of his work and the results. VI. Contributions to science and scientific literature. VII. Educational and administrative works. VIII. Work as Commissioner of Fisheries. IX. Epilogue.

grandfather on the mother's side was the Rev. Elihu Spencer of Trenton, one of the war preachers of the Revolution, whose patriotic eloquence was so influential that a price was set on his head by the British government; his daughter married William M. Biddle, a banker, of an English family for many generations established in Pennsylvania, and identified with the banking interests of Philadelphia. Samuel Baird, the father of the subject of this sketch, established himself as a lawyer at Reading, Pennsylvania, and died when his son was ten years old. He was a man of fine culture, a strong thinker, a close observer, and a lover of nature and out-of-door pursuits. His traits were inherited by his children, especially by his sons Spencer and William. The latter, who was the elder, was the first to begin collecting specimens, and as early as 1836 had in hand a collection of the game-birds of Cumberland County. His brother soon became his companion in this pursuit, and six years later they published conjointly a paper entitled 'Descriptions of two species, supposed to be new, of the Genus *Tyrannula* Swainson, found in Cumberland County, Pennsylvania.' * *

Early in 1838 Professor Baird became acquainted with Audubon, "with whom he was for many years in correspondence, and who, in 1842, gave to him the greater part of his collection of birds, including most of his types of new species." In 1841 a very intimate friendship was begun with George N. Lawrence of New York, with John Cassin of Philadelphia, in 1843, and Thomas M. Brewer of Boston, in 1845. These close friendships continued through life, though of these ornithologists only the first named survives him, the others having died before Professor Baird. They were all at one time or another associated with him in his ornithological work.

Although his elder brother had anticipated him by a few years in beginning the formation of a collection, he soon "diverged into other paths," and became a lawyer in Reading, Pa., † leaving to him the field of ornithology, which he cultivated so assiduously that when the catalogue of his collection ‡ was closed, at

* These species are now known as *Empidonax flaviventris* Baird and *E. minimus* Baird.

† Mr. Goode informs us that "at the time of his death, in 1872," he "was United States collector of internal revenue at Reading."

‡ This catalogue now constitutes Volume I of the series of National Museum 'Register of Specimens,' now filling twenty-one volumes, and containing more than 112,000 separate entries.

number 3696, almost every species of bird occurring, regularly or otherwise, in eastern and central Pennsylvania was represented, and in most cases by series of specimens showing the different stages and phases of plumage. This collection, deposited there by Professor Baird when he entered upon his duties as Assistant Secretary of the Smithsonian Institution, is still in the National Museum, of whose ornithological treasures it forms an important element, so many of its specimens having served as the types of Professor Baird's descriptions in his 'Birds of North America' and subsequent works. In it are "specimens of birds prepared by these boys forty-five [now nearly fifty] years ago by a simple process of evisceration, followed by stuffing the body-cavities full of cotton and arsenical soap,"—a method probably adopted by them before they had learned the art of skinning birds.

Although his collection was made at a time when the art of taxidermy is generally supposed to have been far behind its present status, especially so far as this country is concerned, the excellent preparation of the specimens, their very precise labelling and perfect preservation, show Professor Baird to have been in every respect the peer of any ornithological collector of the present period. Exposed for more than thirty years to constant handling and everything that could effect their deterioration, they are still in a most excellent state of preservation, and none have lost their labels. I have never known a specimen of Professor Baird's preparation to be attacked by insects, a statement which I am able to make regarding few other collections of which I possess the knowledge to speak. The force of these observations may be better appreciated when it is considered that probably no other collection of skins has ever received so much handling as that made by Professor Baird, every standard work on North American birds published since 1850 having been based essentially upon it, so far as eastern species are concerned. Not only are the specimens prepared and preserved in a manner equalled by only the best of our living collectors, but their labels are fastened with unusual security, and contain very precise data, including scientific name (with authority), sex, age, locality, and date; and, usually, on the reverse side, the total length and stretch of wings, measured before skinning.

The formation of so large and varied a collection of course involved such a vast amount of field work as to remove Professor Baird from the *limbo* of so-called 'closet-naturalists.' How

pleasant and instructive to him must have been his out-of-door studies of birds, may be inferred from the extent of his excursions, which are thus described by Mr. Goode :

"In 1841, at the age of eighteen, we find him making an ornithological excursion through the mountains of Pennsylvania, walking four hundred miles in twenty-one days, the last day sixty miles between daylight and rest.* The following year he walked more than 2,200 miles. His fine physique and consequent capacity for work are doubtless due in part to his out-door life during these years."

Considering Professor Baird's great interest in the study of birds, the number of his ornithological publications is astonishingly small, amounting to only seventy-nine different titles (see Mr. Goode's Bibliography, pp. 250-253). It is, therefore, strikingly evident that his publications must have possessed unusual merit to earn for him so great a reputation as an ornithologist. This reputation was indeed established by the first of his separate works, usually known and quoted as 'The Birds of North America,' though not published under this title until two years after its publication by the Government as Volume IX of the 'Report of Explorations and Surveys, to ascertain the most practicable and economical route for a Railroad from the Mississippi River to the Pacific Ocean.' With the publication, in 1858, of this great quarto volume of more than one thousand pages, began what my distinguished colleague, Professor Coues, has fitly termed the 'Bairdian Period' of American ornithology—a period covering almost thirty years, and characterized by an activity of ornithological research and rapidity of advancement without a parallel in the history of the science. Referring to this great work, in his 'Bibliographical Appendix' to 'Birds of the Colorado Valley' (page 650), Professor Coues says: "It represents the most important single step ever taken in the progress of American ornithology in all that relates to the technicalities. The nomenclature is entirely remodelled from that of the immediately preceding Audubonian period, and for the first time brought abreast of the then existing aspect of the case. . . . The synonymy of the work is more extensive and elaborate and more reliable than any before presented; the compilation was almost entirely original,

*Professor Baird informed the writer that he had once, in a pedestrian contest, walked forty miles in eight consecutive hours.

very few citations having been made at second-hand, and these being indicated by quotation marks. The general text consists of diagnoses or descriptions of each species, with extended and elaborate criticisms, comparisons, and commentary. . . . The appearance of so great a work, from the hands of a most methodical, learned, and sagacious naturalist, aided by two of the leading ornithologists of America [John Cassin and George N. Lawrence], exerted an influence perhaps stronger and more widely felt than that of any of its predecessors, Audubon's and Wilson's not excepted, and marked an epoch in the history of American ornithology. The synonymy and specific characters, original in this work, have been used again and again by subsequent writers, with various modifications and abridgment, and are in fact a large basis of the technical portion of the subsequent 'History of North American Birds' by Baird, Brewer, and Ridgway. Such a monument of original research is likely to remain for an indefinite period a source of inspiration to lesser writers, while its authority as a work of reference will always endure."

Thus are graphically described the distinctive features of what Mr. Leonhard Stejneger has truthfully termed the Bairdian School* of ornithology, a school strikingly characterized by peculiar exactness in dealing with facts, conciseness in expressing deductions, and careful analysis of the subject in its various bearings—methods so radically different from those of the older 'European School' that, as the esteemed member whom we have just named has already remarked,† conclusions or arguments can be traced back to their source and thus properly weighed, whereas the latter affords no basis for analysis. In other words, as Mr. Stejneger has, in substance, said, the European School requires the investigator to accept an author's statements and conclusions on his personal responsibility alone, while the Bairdian furnishes him with tangible facts from which to take his deductions.

The dominant sources of Professor Baird's training in systematic ornithology are not difficult to trace; in fact, the bases of his classifications are so fully explained or frequently mentioned in his various works as to leave nothing to mere inference. He studied carefully the more advanced systems of his time, and with unerring instinct selected from them their best features,

* Proc. U. S. Nat. Mus., Vol. VII, 1884, p. 76.

† *Ibid.*, p. 77.

and combined them, together with original ideas, into a classification which was an improvement on its predecessors. Thus, the classification presented in the 'Birds of North America' (1858) is based essentially upon the systems of Sundevall ('Ornithologiskt System,' 1835 and 1843), Cabanis ('Ornithologische Notizen,' 1847), and Keyserling and Blasius ('Wirbelthiere Europas,' 1840). The nomenclature was fixed by methods adopted from G. R. Gray ('List of the Genera of Birds,' etc., 1841-42), to the abandonment of which must be attributed most of the subsequent changes in generic names. In the 'Review' (1864-66) and 'History of North American Birds' (1874), a further concession is made to the classifications of Sundevall and Cabanis by commencing with the Order Passeres and Family Turdidæ instead of the Raptores. The same systems were the foundation of Liljeborg's 'Classification of Birds,' formally adopted by the Smithsonian Institution (through Professor Baird) in 1866, by Messrs. Sclater and Salvin (with certain emendations and amplifications) in 1873, and with still further modifications by the American Ornithologists' Union, in 1886.

The distinctive features of the 'Bairdian School' were still further developed by the publication, in 1864-66, of the 'Review of American Birds,' a work of unequalled merit, displaying in their perfection Professor Baird's wonderful powers of analysis and synthesis, so strongly combined in his treatment of difficult problems. Unfortunately for ornithology, this work was but fairly begun, only a single volume (an octavo of 450 pages) being published. The cause of its discontinuance is not definitely known to the present writer, but it may have been the intervention of the 'Ornithology of California,'* a work based on the manuscript notes of Dr. J. G. Cooper, but edited by Professor Baird, who also superintended its publication, and the 'History of North American Birds,'† material for which was already being

* Geological Survey of California. | J. D. Whitney, State Geologist. | — | Ornithology. | Volume I. | Land Birds. | Edited by S. F. Baird, | from the manuscript and notes of | J. G. Cooper. | Published by authority of the Legislature. | 1870. |

A royal octavo volume of 592 pages, illustrated by numerous woodcuts, some colored by hand.

† A | History | of North American Birds | by | S. F. Baird, T. M. Brewer, and R. Ridgway | Land Birds | Illustrated by 64 colored plates and 593 woodcuts | volume I. | [III]. | [Vignette.] | Boston | Little, Brown, and Company | 1874. | 3 vols., small quarto, vol. I. pp. i-xxviii, 1-596, i-vi, cuts, and pll. i-xxvi, Vol. II, 3 pll. pp. 1-590, i-vi, cuts, and pll. xvii-lvi, Vol. III, 3 pll., pp. 1-560, 1 l., i-xxviii, cuts, and pll. lvii-lxix.

arranged, besides other literary work and the increasing pressure of administrative duties. Whatever the cause, however, its discontinuance is to be regretted, since its completion would have given us an invaluable guide to the study of Neotropical birds. I have it on good authority, that no single work on American ornithology has made so profound an impression on European ornithologists as Professor Baird's 'Review'; and, by the same authority, I am permitted to state that he—a European by birth and rearing—became an American citizen through its influence.

In the preface to the present writer's latest work on American ornithology* the author is proud to mention that the book was "originally projected by Professor Spencer F. Baird . . . whose works represent the highest type of systematic ornithology and have furnished the model from which the younger generation of ornithologists have drawn their inspiration"; and that his friendly advice and suggestions had rendered comparatively easy the performance of a task which under less favorable auspices would have been far more difficult of accomplishment—acknowledgments which but faintly express the author's obligations to his tutor.

In commenting upon the value of Professor Baird's contributions to scientific literature, Professor Goode remarks that "no

* A Manual | of | North American Birds. | By | Robert Ridgway. | — | Illustrated by 464 outline drawings of the | generic characters. | — | Philadelphia : | J. B. Lippincott Company. | 1837 | Royal octavo. Frontispiece (portrait of Professor Baird), pp. i-xi, 1-631, pll. i-cxxiv.

The history of this work, briefly stated, is as follows :

Before the printing of the 'History of North American Birds' had been completed, Professor Baird had under way a smaller but very useful work, consisting of the analytical or synoptical tables of the larger work, improved and somewhat enlarged by the introduction of brief diagnoses of the nests and eggs of the different species, together with the English names. This book, of which there exists only a single copy, and that not perfect, was completed early in 1874. Its title is 'Outlines of American Ornithology by S. F. Baird and R. Ridgway. Part I. Land Birds.' For some reason the work was never published, and the electrotype plates were destroyed. This work, in which the present writer had some share, was the embryo which, after twelve years' incubation, finally developed into the more comprehensive 'Manual of North American Birds,' in the preparation of which, however, Professor Baird took no active part, though it is scarcely necessary to say that he was much interested in its progress, even almost to the close of his life, which ended shortly after the work had been printed, but before it could be published. It has been a matter of deep regret to the author, that Professor Baird could not have had a share in the preparation of the book, and still more that he could not have lived to enjoy the satisfaction of seeing it published.

one not living in the present can form an accurate idea of the personal influence of a leader upon his associates and upon the progress of thought in his special department, nor can such an influence as this well be set down in words. This influence is apparently due not only to extraordinary skill in organization, to great power of application and concentration of thought constantly applied, and to a philosophical and comprehensive mind, but to an entire and self-sacrificing devotion to the interests of his own work and that of others."

But it is not only through his published works and personal influence with his associates and pupils, that Professor Baird was powerful in the development and advancement of ornithology in America. His position as head of the Smithsonian Institution and the National Museum gave him peculiar opportunities for putting into practical shape his plans for a thorough exploration of little known portions of the continent. "To his influence with the Government authorities is due the excellent field-work done in connection with nearly all the Government Surveys and the Signal Service Bureau, from the first inception of the various Pacific Railroad Surveys to the present time."* If the exploration of a particular field suggested itself to him, he rarely failed to find, sooner or later, means to accomplish the object in view; no opportunity for making use of, or securing the coöperation of, other departments of the Government in maintaining explorations which he had himself instigated or organized was ever neglected, and for such opportunities he was constantly alert. His success in thus promoting the cause of science was, however, by no means wholly due to the importance of his official positions, his personal zeal and influence often accomplishing what might not otherwise have been successful.

The sterling qualities of mind and heart which were so conspicuous in Professor Baird's character were as well known and as highly appreciated abroad as at home. As an illustration of this fact, I quote the following obituary notice in '*Nature*,' for August 25, by Mr. R. Bowdler Sharpe, Senior Assistant, Department of Zoölogy, in the British Museum, well known as an ornithologist of eminence:

"By Englishmen who knew Professor Baird personally, the loss must be especially felt, but there are many who never had met

* Editorial, in '*The Auk*,' Oct. 1887, p. 358.

him in the flesh, to whom the news of his decease must come as that of a dear friend. As one of the latter class we venture to express our sympathy with our scientific brethren in America on the decease of one of their most eminent and respected colleagues. As chief of the Smithsonian Institution, Professor Baird possessed a power of conferring benefits on the world of science exercised by few directors of public museums, and the manner in which he utilized these powers has resulted not only in the wonderful success of the United States National Museum under his direction, but in the enrichment of many other museums which were in friendly intercourse with the Smithsonian Institution. We know by experience that the British Museum is indebted beyond measure to Professor Baird, and we need only refer to the recent volumes of the 'Catalogue of Birds' to show how much our National Museum owes to the sister Museum in America for hearty co-operation. We had only to write and express our wants, and immediately every effort was made, by Professor Baird's instructions, to supply all the desiderata in our ornithological collection, and this without the slightest demand for an equivalent exchange, though, of course, in the case of the British Museum, every effort was made to reciprocate the good feeling shown by the great American Museum. There must be many private collectors in this country who will indorse our acknowledgments to Professor Baird for the unrivalled liberality which he has always shown in the advancement of the studies of every ornithologist who invoked his aid. . . . We may add that, during an experience of twenty years, we have never heard from any ornithologist, European or American, a single unkind word concerning Professor Baird, either in his public or private capacity. This is something to say in this age of jealousies and backbitings."

Indeed, it may with truth be said that so widespread, so nearly universal, has been his influence, that few there are, if any, among his contemporaries who have not had occasion to record their sense of obligation for his aid, his counsel, or his noble example. We all delight to acknowledge him our great teacher, and in doing so do honor to ourselves.

A very marked trait of Professor Baird's character was his aversion to personal controversy, which was so decided that under no circumstances could he be drawn into one. It was his invariable rule to answer his critics by a dignified silence, no matter

how great the provocation to reply, or how strong a case his side presented; and in every instance known to the writer it has transpired that the ground taken or the statements made by Professor Baird have stood the test of time. "One of his striking characteristics was that he would never quarrel and never have anything to do with the quarrels of others. He was always for peace."*

As a public officer, no man was more conscientiously devoted to his duty or faithful in its performance; and he administered the complicated affairs of three distinct and important establishments with an ability which commanded admiration, although it was plainly to be seen that the responsibilities were too great for any single person to bear. His capacity for work was enormous, and he was constantly occupied. He enjoyed work, and it was not his industry which hurt him; but the harassing cares of his public trusts and the weight of their responsibility were too much for even his powerful physique to endure, and he gave way under the strain.

No man was more easily approached than Professor Baird, or greeted a new acquaintance more cordially. His reception of young persons, especially those with an inclination for natural history, was particularly charming, at once relieving them from embarrassment and captivating them by his unassuming manners, his genialty, and frankness.

Trusting that he does not introduce too prominently his own personality into this memoir, the writer offers the following brief outline of his personal acquaintance with Professor Baird, as being of probable interest to members of the Union, and as giving an insight into the character of his lamented friend.

Until near the middle of the year 1864, the writer, then a lad in his fourteenth year, was unacquainted with the name of any living naturalist, or with any books on natural history except such general or superficial compilations as Goldsmith's 'Animated Nature,' a history of the United States (author forgotten) which included a chapter or two on the natural history, and Goodrich's 'Animal Kingdom'—works which, although supplying much valuable information to the general reader, were of course wholly inadequate to the wants of a special student. A lady resident in the town learned of his difficulties, and sug-

* Professor Otis T. Mason, in 'Washington Evening Star' of August 20.

gested that by writing to the Commissioner of Patents in Washington he might be able to obtain the correct names of birds, supplementing her fortunate suggestion by the gift of an envelope bearing the printed address of a former Commissioner of Patents. A letter was written, and with it was enclosed a colored drawing, life size, of a pair of Purple Finches ("Roseate Grosbeak, *Loxia rosea*," of the incipient ornithologist) perched upon a dry stalk of the great ragweed (*Ambrosia trifida*), the seeds of which in winter constitute the principal food of the bird in that locality. An answer was awaited with great impatience, but in due time was received, the following being an exact copy:

"No. 5664.

SMITHSONIAN INSTITUTION,
Washington, D. C., June 23, 1864.

"DEAR SIR:

"The present Commissioner of Patents (Mr. Holloway, not Mr. Bishop), has sent me your letter, as more conversant with the subject of North American Birds than himself. I have read it with interest and much pleasure, as showing an unusual degree of ability as an artist, and of intelligent attention to a scientific subject. I had no difficulty in recognizing the bird you sent, and was much pleased to see that you had given all the essential features of form and color with much accuracy.

"The bird is the Purple Finch (*Carpodacus purpureus*). I send you a catalogue of the birds of North America, and some other pamphlets.* If you can procure the 9th volume of the Pacific Railroad Reports, you will find descriptions of all the North American birds, by myself.

"I will be glad to hear from you and to render you any aid by naming your drawings, or in any other way. You must learn the scientific names of the birds, and thus be able to talk and write about them with persons not knowing the English names used in your part of the country.

"Let me know what kind of eggs you have.

"Very truly yours,

(Signed) "SPENCER F. BAIRD.

"Asst. Sec. S. I."

"ROBERT RIDGWAY,

"Mt. Carmel,

"Illinois."

The above letter was a revelation to the recipient, who, in his isolation, was ignorant of the existence of any one but himself engaged in the study of birds. He had read of Audubon and

*These were the various circulars of instruction for collecting and preserving specimens of natural history, published by the Smithsonian Institution, and well known to naturalists in this country.

Wilson, and Nuttall, and Bonaparte, but these he knew were all dead. The profound impression produced by the letter and the hope that it gave, may be imagined. From this commencement arose a correspondence which to the present writer was a constant source of delight and instruction, and to which he looks back with feelings that cannot be expressed. It was not until the early part of 1867, nearly three years later, that the writer obtained a copy of the text of 'Birds of North America' (Volume IX, Pacific R. R. Report), and it therefore became necessary for him to continue the sending of drawings and descriptions in order to obtain the much desired identifications. In replying to the writer's numerous letters of this character, Professor Baird always wrote most kindly and encouragingly, replying to multitudinous queries as fully as the arduous duties of his official position would allow. To mention all the useful hints which he gave would require too much space here, but the following are selected as samples:

"I would advise you to spend most of your leisure time in practising drawing of birds and mammals from nature and from life, so as to acquire a facility in seizing a temporary attitude and transferring it to paper. Make these sketches continually whenever you have the opportunity, so as to secure the more practice. A certain number of these drawings you may work up in their minutest details, and it will be a good exercise to draw the feathers of a single wing, as well as bill, feet, etc., and skulls of mammals. The object should be in drawing form to secure artistic elegance and at the same time a minute, almost microscopic, accuracy in matters of detail, as far as they can be represented.

"The drawings you have sent are too fragmentary to show what your present abilities as an artist are, and I would rather see some full-sized figures . . ."

"It will not be necessary to spend much time in practising coloring, as this is rather a mechanical work, easily acquired by practice. The first object should be to obtain the highest perfection in drawing the form and in filling out minute details." (From a letter dated December 24, 1865.)

In a letter dated January 13, 1867, he gave this valuable advice as to writing field-notes: "Let me give you one hint in regard to making notes on the specimens. *Never write on both sides*

of the same leaf. In this way it will be possible to cut apart your notes into slips and assort with others of same purport, so as to rearrange systematically. Do this for your own notes as well as those you send me: You will often realize the advantage of so doing."

It is unnecessary here to go into details concerning events subsequent to the beginning of this correspondence. Suffice it to say that in all his relations with Professor Baird the writer remembers, with deepest gratitude and reverence, his uniform great kindness of heart, his genial manners, his wise counsels, and his steadfast friendship; and, with others who were so fortunate as to have enjoyed the privilege of his acquaintance, he mourns a departed friend and teacher, whose loss is irreparable.

UPPER MISSOURI RIVER BIRDS.

BY ROBERT S. WILLIAMS.

It is a bright morning on the 9th of May, and, with gun and game bag, I start out for a walk along the Missouri River above town (Great Falls, Montana). The wind, which has been blowing almost a gale for several days past, is this morning scarcely perceptible; a few fleecy clouds are in the clear sky above, and the prairies are rapidly changing their dull colors to summer tints of green. At a distance, the scattered cotton-woods stand up as bare and gray as in the depth of winter, and the willows scarcely show signs of returning life, except in the warm, sunny nooks, where they are rapidly assuming the misty green that will shortly envelop them and change their whole appearance.

On all sides the birds are doing their best to proclaim the arrival of another spring. In the distance are heard the loud and long-drawn out whistlings of the Curlew as he wings his way here and there over the prairie. Close at hand are Chestnut-collared and McCown's Longspurs uttering their pleasing warbles. The latter bird is constantly flying rapidly upward for a short distance, then with wings motionless above the back, it sails slowly to the ground, reminding one of a huge butterfly,

and all the time singing so vigorously that one might suppose it had forgotten even the motion of its wings in directing all its energies to music. Shorelarks are about, with young almost able to fly, and the loud and well known song of the Meadowlark is heard from all directions, as the birds pause for an instant on some rock or post, or fly after their mates. A bird not so commonly observed, yet quite abundant, is the Missouri Skylark (*Anthus spraguei*), and its song, as usually noted far overhead, would scarcely attract attention from any casual observer, for all its wonderful melody when clearly heard. The notes more closely resemble those of Swainson's Thrush than of any other bird I am acquainted with, but the song is louder and more prolonged. Still another bird of the prairies, oftener heard than seen, is the Western Yellow-winged Sparrow. It is often so shy that one has great difficulty in approaching near enough for a shot. These last two species are recent arrivals from the south. The earliest date I have for the appearance of either is May 8, 1885.

Thus far the birds mentioned are observed while passing over about a mile of prairie, before reaching the river. As I approach some willows by the water's edge, the mellow, ringing song of the Ruby-crowned Kinglet falls on the ear, and directly the bird itself appears flitting about among the lighter sprigs. This species arrives during the first week of May, and breeds commonly in the mountains, but is never seen in the valleys except in migration. Its relative, the Golden-crested, I have only noted in the fall migration, and it is apparently a rare bird at all times. Brewer's Blackbirds, along with Crow Blackbirds and Cowbirds, stop their noise and scolding for an instant as I approach near them. Soon the willows are passed and I proceed along the river bank, which extends only a few feet above the water for some half a mile, to where the surface becomes broken by low sand hills and ridges that run parallel with the river for some distance, and are covered with a scant growth of box elder, cotton-wood, wild cherry, etc. Just before reaching the sand hills I notice three birds out in the river. They are making towards me and I hastily get behind a hummock where it is easy to watch their movements. From their color, large size, and especially the long neck held so upright, I conclude they must be the Western Grebe (*Aechmophorus occidentalis*), and such indeed they prove. While they are still far out of gun shot an American

Golden-eye comes flying low down over the water and plunges in, not twenty yards away. This bird is quite common here in spring. I have seen them as late as the 17th of May, but I have never noticed them in mid-winter. Barrow's Golden-eye is the common winter bird about the falls, etc., mostly leaving by the middle of April. Meantime the Grebes have been constantly approaching. Waiting till the one nearest shore dives I run down to the water's edge, while the Golden-eye hastily betakes himself off. The Grebe shortly coming to the surface affords a fair shot, and a single pellet passing through the neck kills him instantly. A second shot at the others simply causes them to drop suddenly out of sight, and they come up far out in the river. Wind and current shortly bringing the prize to land I dispose of it, and soon reach the brush and timber above. Violet-green and White-bellied Swallows occasionally pass overhead. The two species arrive together, within a day or two of the first of May, and are constantly associated throughout the season. Both have the same irregular flight, varying constantly in direction and swiftness, and were it not for the apparently white rump of the Violet-green, the two species would not be so easily distinguished on the wing.

Red-shafted Flickers are abundant. They have already paired and are busily arranging their summer homes. Only one other species of this family, a single Downy Woodpecker, was noted during the morning, although six or seven species are more or less common in the mountains. A few Yellow-rumped Warblers are flying about singly here and there in the cotton-woods and willows. The specimen shot proved to be *Dendroica coronata*, although in my experience *D. auduboni* is much the commoner bird of the two in the Territory, and is the one usually breeding in the mountains. Two Yellow Warblers (*D. aestiva*) are noted. They have doubtless just arrived, and in a short time the species will become common; also two Brown Thrushes are heard, for the first time this year. Other recent arrivals are the Western House Wren and Towhee (*Pipilo maculatus arcticus*).

Hearing a great noise and stir out in the river I walk to the bank and look across, and there, near a sand bar, two or three hundred yards away, is a large flock of Avocets. They are wheeling about, alighting first on the bar, then in the water,

keeping up a constant noisy piping. A few birds, at least, remain about alkali ponds on the prairies during the summer. A little farther up the river a flock of Shoveler Ducks fly past. Their every note and action is full of vigor, as they drop suddenly to within a few feet of the water, or as quickly rise upward, or wheel to one side, as if flight to them were only play. Farther on and the mellow, piping notes of some Green-winged Teal are heard from a bit of quiet water. The birds are so busy feeding that they do not notice my approach till within a few rods of them, when they quickly rise from the water and are off. Flocks of the males are to be found here commonly throughout the winter. As compared with this species, the Blue-winged Teal is quite rare, and is never found here in winter, I believe.

During the morning several pairs of Canada Geese are seen flying low over the prairies, to or from their feeding grounds. Small numbers of them remain throughout the year, and these apparently breed very early, beginning to lay even toward the latter part of March. Where the cotton-wood timber is heavy, the nest is doubtless sometimes placed in trees. I have seen the birds alight on large limbs thirty or forty feet above ground, although I never observed the nest in such places. The Mallard is another winter bird, many males, at least, remaining during the coldest weather. I have obtained their nest, with mostly fresh eggs, as late as May 24, though probably they sometimes breed much earlier.

As one of the small islands in this part of the river is passed, the cooing of many Turtle Doves comes across the water. Sometimes two birds begin and continue their notes in unison to the close, producing a curious sort of duet. The Doves arrived this year about May 5. They are common in nearly all the valleys, but I have never seen them in flocks of any size. Among Sparrows that inhabit timber and brush, the Intermediate White-crowned is abundant now. A week or so later none are found outside the mountains, where they breed commonly. The White-throated Sparrow, so like this in many of its habits, I have never seen in Montana except on one occasion. September 18, 1885, I observed a few along with the preceding species, in brush on lower Sun River. The only specimen shot was so badly torn by the charge that I was unable to preserve the skin. Song Sparrows are occasionally heard singing from some brush

pile or thicket. They arrive early, April or thereabout, and Grass Finches, which appear about a month later, are common everywhere. I will mention two other Sparrows, specimens of which I obtained this spring, though none were noted on the present occasion. One is the Fox-colored Sparrow, which seems to be of uncommon occurrence here, and the other Lincoln's Sparrow. Both are so retiring in their habits as to be readily overlooked. I have shot but two or three specimens of each in the Territory.

On returning to town shortly before noon, little further of interest is observed, as the ground traversed is about the same. It is still early for many of the smaller birds, some of which do not arrive till about the first of June.

AN ANNOTATED LIST OF BIRDS BREEDING IN THE DISTRICT OF COLUMBIA.

BY CHARLES W. RICHMOND.

IN treating of the fauna and flora of the District of Columbia, authors generally extend the limits twenty miles from the Capitol in all directions. Owing to the fact that his experience does not extend far beyond the District limits proper, the writer has preferred to restrict the present notes, as much as possible, to within that boundary. Some species are left out, therefore, which would otherwise be included. Among such birds are the Bald Eagle (*Haliaeetus leucocephalus*), the Wild Turkey (*Meleagris gallopavo*), and the Wood Duck (*Aix sponsa*), which are known to breed at Mt. Vernon, Va., about fourteen miles from Washington; the Turkey Vulture (*Cathartes aura*), and the Great Horned Owl (*Bubo virginianus*), breeding near Wilson's Station, Md., about seven miles from here, as the writer is informed by Mr. Frank White. The Red-tailed Hawk (*Buteo borealis*) has been found breeding at Sandy Spring, Md., about eighteen miles distant, by Dr. A. K. Fisher.

Mr. Hugh M. Smith kindly contributes the following interesting note on the breeding of the American Scaup Duck (*Aythya*

marila nearctica) at Mt. Vernon: "In May, 1881, a female duck was often noticed swimming to and from a marshy tract near Mt. Vernon Springs, and in June was flushed from the nest by Mr. L. P. Pumphrey, an experienced gunner and duck shooter. The nest contained fourteen eggs, which were not disturbed. Later in the same month they were found to have hatched (with the exception of one), and the young ducks were transferred to the care of a hen. The ducks grew, and when old enough to fly, went off one at a time and never returned. At no time was the male bird seen. Mr. Pumphrey's identification of the bird was complete, and his great familiarity with the birds of the river makes his *dictum* reliable." This instance, of course, was purely accidental, the bird probably being wounded and obliged to remain where it was discovered.

Three birds given as breeding in 'Avifauna Columbiana,' by Drs. Coues and Prentiss, are here omitted, viz: Brown Creeper (*Certhia familiaris americana*), Tree Swallow (*Tachycineta bicolor*), and Bronzed Grackle (*Quiscalus quiscula aeneus*). The first is a winter resident, being common from the middle of October until the first week in April. The Tree Swallow is said to be "a common summer resident," whereas it does not occur as such, although small scattered flocks of migrants are often seen flying over the city during the latter part of July. The Bronzed Grackle is little more than a straggler, and individuals passing through here hardly remain to breed. However, the writer has a male, taken on April 17, 1886, a date when ordinary *quiscula* is nesting, and a female shot on April 6, 1887, about the time the Purple Grackles are laying their first eggs. Both of these birds were taken in a grove of cedars occupied by a colony of Purple Grackles.

The writer desires to thank Mr. H. W. Henshaw, Mr. Robert Ridgway, and others whose names are mentioned in connection with the following notes, for information and assistance in preparing the list. The notes apply to the breeding season only.

1. *Botaurus exilis*. LEAST BITTERN.—Rare. Has been seen here in summer.
2. *Ardea egretta*. AMERICAN EGRET.—Mr. Wm. Palmer has known this bird to nest in Arlington Cemetery.
3. *Ardea virescens*. GREEN HERON.—Quite common. Several pairs nest along the Eastern Branch every year.

4. *Nycticorax nycticorax naevius*. BLACK-CROWNED NIGHT HERON.—Same as *Ardea egretta*.

5. *Rallus elegans*. KING RAIL.—A nest found June 15, 1887, in a marsh opposite Long Bridge, by Mr. Melville Thompson, contained eleven eggs, partly incubated. This is the only nest found here, to the writer's knowledge.

6. *Rallus virginianus*. VIRGINIA RAIL.—This Rail and the following have been seen here during the nesting season, and both undoubtedly breed.

7. *Porzana carolina*. SORA.

8. *Philohela minor*. WOODCOCK.—Rare. Mr. Henshaw informs the writer that the Woodcock used to nest quite commonly in the vicinity of Washington, before it was killed off by gunners.

9. *Actitis macularia*. SPOTTED SANDPIPER.—Rather uncommon. Have never found the nest here, but have shot young birds.

10. *Ægialitis vocifera*. KILLDEER.—Rather rare. Sometimes seen or heard during the summer.

11. *Colinus virginianus*. BOB-WHITE.—Quite rare.

12. *Bonasa umbellus*. RUFFED GROUSE.—Rare. Both this bird and the preceding are abundant in the surrounding country in Maryland and Virginia.

13. *Zenaidura macroura*. MOURNING DOVE.—Common. Have found eggs as early as April 18. Nests generally in cedar thickets.

14. *Accipiter velox*. SHARP-SHINNED HAWK.—Rare. A nest with four eggs was found by Mr. Louis McCormick in Alexandria Co., Va., about six miles from Washington, on May 20, 1882.

15. *Accipiter cooperi*. COOPER'S HAWK.—Rare. Mr. Hugh M. Smith has two eggs taken May 8, 1865.

16. *Buteo lineatus*. RED-SHOULDERED HAWK.—Mr. Henshaw has found several nests.

17. *Buteo latissimus*. BROAD-WINGED HAWK.—Not common. Mr. Henshaw has found it breeding.

18. *Falco sparverius*. AMERICAN SPARROW HAWK.—Rare.

19. *Strix pratricula*. AMERICAN BARN OWL.—Very rare. The National Museum collection contains two eggs of this bird taken from the Smithsonian towers, one in June, 1861, and the other June 1, 1865.

20. *Asio wilsonianus*. AMERICAN LONG-EARED OWL.—Rare. This species is given a place on the authority of Mr. Henshaw, who says that it breeds here.

21. *Syrnium nebulosum*. BARRED OWL.—Rare. This Owl breeds in Maryland and Virginia, and it has been seen here in June.

22. *Megascops asio*. SCREECH OWL.—Common. A nest found April 24, contained eggs about to hatch, and young birds fully fledged and flying about have been taken on May 30.

23. *Coccyzus americanus*. YELLOW-BILLED CUCKOO.—Common. Eggs found first week in June. Nests generally in thick, dark woods with abundant undergrowth.

24. *Coccyzus erythrophthalmus*. BLACK-BILLED CUCKOO.—Rare.
25. *Ceryle alcyon*. BELTED KINGFISHER.—Uncommon.
26. *Dryobates villosus*. HAIRY WOODPECKER.—Very rare. Mr. Henshaw saw a pair of these birds late in May, 1887, and judged from their actions that they were nesting.
27. *Dryobates pubescens*. DOWNY WOODPECKER.—Rather common.
28. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.—Common. Eggs found second week in May.
29. *Melanerpes carolinus*. RED-BELLIED WOODPECKER.—Very rare. Mr. Henshaw saw an individual about the last of May, 1887.
30. *Colaptes auratus*. FLICKER.—Common. Eggs found second week in May.
31. *Antrostomus vociferus*. WHIP-POOR-WILL.—Quite rare, but common in adjacent portions of Maryland and Virginia.
32. *Chordeiles virginianus*. NIGHTHAWK.—Uncommon. Have never found the nest here, but see the birds all through the summer.
33. *Chætura pelagica*. CHIMNEY SWIFT.—Abundant. Eggs found the second week in June.
34. *Trochilus colubris*. RUBY-THROATED HUMMINGBIRD.—Uncommon. Begins nesting the last week in May.
35. *Tyrannus tyrannus*. KINGBIRD.—Quite common.
36. *Myiarchus crinitus*. CRESTED FLYCATCHER.—Common. Have found only one nest containing the usual cast-off snake skin. Eggs found the first week in June.
37. *Sayornis phœbe*. PHOEBE.—Common. An early breeder as compared with other species of the Tyrannidæ nesting here. Eggs found first week in May.
38. *Contopus virens*. WOOD PEWEE.—Common. Begins nesting first week in June.
39. *Empidonax acadicus*. ACADIAN FLYCATCHER.—Common. Eggs deposited second week in June; never more than three are found in one nest. The bird is always found in a solitary part of the woods, where few other birds are seen. Its nest is placed half-pendant at the end of a horizontal branch, generally so low that it can be reached without climbing; sometimes, however, it is twenty feet or more from the ground. The eggs resemble those of *Contopus virens*, but are slightly smaller; the ground is of a deeper cream color, and the spots, not so numerous or so large as in *virens*, are reddish brown. The note of *acadicus* is a sharp *peep*.
40. *Cyanocitta cristata*. BLUE JAY.—Rare. Common in the adjoining country.
41. *Corvus americanus*. AMERICAN CROW.—Abundant. Have taken full clutches as early as March 27. Generally five or six eggs are found in a nest.
42. *Corvus ossifragus*. FISH CROW.—Not common. Mr. Henshaw has found it nesting.
43. *Molothrus ater*. COWBIRD.—Rare. Prior to 1884 the writer frequently found eggs of this parasite in nests of *Vireo olivaceus*, *Dendroica*

æstiva, *D. discolor*, and other small birds, but since then has not found one. *Molothrus* generally lays its eggs in nests of birds smaller than itself, and which lay similar spotted eggs. Have occasionally found its egg in the nest of the Chipping Sparrow, and once in a Bluebird's nest situated in a hole in a fence post. This nest contained two eggs of the Cowbird, almost exact counterparts of each other, and probably laid by the same bird.

44. *Agelaius phœniceus*. RED-WINGED BLACKBIRD.—Common.
45. *Sturnella magna*. MEADOWLARK.—Common.
46. *Icterus spurius*. ORCHARD ORIOLE.—Uncommon.
47. *Icterus galbula*. BALTIMORE ORIOLE.—Very uncommon.
48. *Quiscalus quiscula*. PURPLE GRACKLE.—Abundant. Breeds in communities. Nests exclusively in cedar or other coniferous trees. Eggs may be found the first week in April, five or six being laid. 'Runt' eggs are sometimes found. Two broods are raised, perhaps three.
49. *Passer domesticus*. EUROPEAN HOUSE SPARROW.—This little renegade is excessively abundant. They are frequently seen building nests during mild days in winter, and rear four or five broods a year, probably more. In June, large numbers, mostly young birds, congregate about grain fields and along country roads, where they remain until harvest time is over. Eggs generally five or six; nest lavishly lined with feathers.
50. *Loxia curvirostra minor*. AMERICAN CROSSBILL.—Extremely rare. An adult male accompanied by one young bird was seen by Mr. Hugh M. Smith on May 17, 1885. This species has been known to breed in Maryland. (See 'The Auk,' Vol. I, p. 292, and Vol. II, p. 379.)
51. *Spinus tristis*. AMERICAN GOLDFINCH.—Very common. A late breeder, hardly beginning to nest before the middle of July. Mr. Smith has taken eggs as late as August 30. Eggs five or six.
52. *Poocætes gramineus*. VESPER SPARROW.—Rather common.
53. *Ammodramus savannarum passerinus*. GRASSHOPPER SPARROW.—Common.
54. *Ammodramus henslowii*. HENSLow's SPARROW.—Very common around Falls Church, Va., a short distance from Washington.
55. *Spizella socialis*. CHIPPING SPARROW.—Very common. Three broods are raised.
56. *Spizella pusilla*. FIELD SPARROW.—Abundant. Often nests on the ground. Three broods are reared.
57. *Melospiza fasciata*. SONG SPARROW.—Abundant. Commonly nests on the ground and in low bushes. One nest found was in a cedar, seven feet from the ground.
58. *Pipilo erythrophthalmus*. TOWHEE.—Common. Three or four eggs generally constitute a clutch.
59. *Cardinalis cardinalis*. CARDINAL.—Common. Have never found more than three eggs in a nest.
60. *Guiraca cærulea*. BLUE GROSBEAK.—Rare.
61. *Passerina cyanea*. INDIGO BUNTING.—Common. Begins nesting first week in June. Four eggs are generally laid.

62. *Spiza americana*. DICKCISSEL. —Extremely rare. This bird is said to have been abundant, formerly, but it appears to have withdrawn almost entirely from this vicinity. A male was seen by Mr. Henshaw about the last of May, 1887. It was very likely nesting.

63. *Piranga erythromelas*. SCARLET TANAGER. —Quite rare. Mr. W. F. Roberts has taken young birds.

64. *Piranga rubra*. SUMMER TANAGER. —Very uncommon. Found a nest July 4, 1885, containing three fresh eggs.

65. *Progne subis*. PURPLE MARTIN. —Rather common. There are several nesting sites where the Martins still 'hold the fort,' despite the English Sparrows, notably the Masonic Temple and the Post Office Department building.

66. *Petrochelidon lunifrons*. CLIFF SWALLOW. —Rare.

67. *Chelidon erythrogaster*. BARN SWALLOW. —Very common. Begins nesting about the third week in May.

68. *Clivicola riparia*. BANK SWALLOW. —Very common.

69. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW. —Common. Numbers of these birds nest along the river in crevices among the rocks. I know of a small colony that frequents a stone culvert, over which is a railroad track, and through which a small stream passes. This culvert is built of rough uncut stones, and presents innumerable fine nesting sites for the Swallows. One nest found here was placed in a crevice about one foot above running water, and contained young. Six or seven eggs are laid, and first clutches are completed by May 17. A set of seven eggs found during June, 1887, contained six of this species and one of the Barn Swallow.

70. *Ampelis cedrorum*. CEDAR WAXWING. —Common. The Cedar-bird does not nest till late in the season, and is sometimes eccentric about choosing a nesting place. A nest found within the city limits was situated in a lamp post, and contained one egg. It will forsake its nest on the slightest provocation, even after laying one or more eggs.

71. *Vireo olivaceus*. RED-EYED VIREO. —Abundant. The nesting season usually begins about the last week in May. A nest, found by Mr. M. Thompson, was in a small shrub only a foot and a half from the ground. One egg of a set of three in the possession of the writer, is unspotted.

72. *Vireo gilvus*. WARBLING VIREO. —Uncommon. The rarest of the breeding Vireos.

73. *Vireo flavifrons*. YELLOW-THROATED VIREO. —Rather common. It appears to nest much earlier than *olivaceus*.

74. *Vireo noveboracensis*. WHITE-EYED VIREO. —Rather common.

75. *Mniotilta varia*. BLACK-AND-WHITE WARBLER. —Common. Have found fully fledged young by June 14.

76. *Helminthus vermivorus*. WORM-EATING WARBLER. —Not rare. Discovered a nest on a steep hillside bordering on Rock Creek, May 31, 1885, containing six eggs, well incubated. The nest was large for the size of the bird, and very loosely constructed. The outer part was com-

posed of skeleton leaves, and the lining was of hair moss (*Polytrichum*). On the 14th of June the same year, another nest, containing five young birds half-fledged, was found in the same locality. The next year a deserted nest was found, corresponding in size and material with the other two. June 5, 1887, Mr. M. Thompson found a nest with five half-grown young. The nest was on a hillside facing the west, as were the other three, and was composed of like materials.

77. *Helminthophila pinus*. BLUE-WINGED WARBLER. — Extremely rare. Mr. Herman H. Birney found a nest containing four eggs about to hatch, early in June, 1880. This is probably the only known instance of its occurrence here during the breeding season.

78. *Compsothlypis americana*. PARULA WARBLER. — Rare. Heard a male singing June 10, 1886, and watched it for some time, hoping it would give me information regarding the whereabouts of its nest, something it firmly declined to do.

79. *Dendroica aestiva*. YELLOW WARBLER. — Common.

80. *Dendroica vigorsii*. PINE WARBLER. — Very rare in summer.

81. *Dendroica discolor*. PRAIRIE WARBLER. — Common. The nest is very difficult to find.

82. *Seiurus aurocapillus*. OVEN-BIRD. — Abundant. Begins nesting about the last week in May; eggs four or five.

83. *Seiurus motacilla*. LOUISIANA WATER-THRUSH. — Uncommon.

84. *Geothlypis formosa*. KENTUCKY WARBLER. — Rare. Mr. Henshaw has found the nest here, and I have found young birds hardly able to fly.

85. *Geothlypis trichas*. MARYLAND YELLOW-THROAT. — Abundant.

86. *Icteria virens*. YELLOW-BREASTED CHAT. — Common. Begins nesting last week in May.

87. *Setophaga ruticilla*. AMERICAN REDSTART. — Rather common.

88. *Mimus polyglottus*. MOCKINGBIRD. — Rare.

89. *Galeoscoptes carolinensis*. CATBIRD. — Very abundant. Commences nesting about the middle of May; eggs four or five.

90. *Harporhynchus rufus*. BROWN THRASHER. — Moderately abundant. Begins nesting about two weeks earlier than the preceding. The nest is sometimes found on the ground.

91. *Thryothorus ludovicianus*. CAROLINA WREN. — Common. An early breeder. After leaving the nest the young birds continue with the old for some time.

92. *Troglodytes aëdon*. HOUSE WREN. — Very common. A nest found at Dunn-Loring, Va., by Mr. J. D. Figgins, was built inside of a deserted Barn Swallow's nest, and contained seven eggs.

93. *Cistothorus palustris*. LONG-BILLED MARSH WREN. — Very numerous. Breeds abundantly in all the marshes around Washington. Dr. Coues, in his 'Birds of the Northwest,' speaks as follows on the nidification of the Marsh Wren: "The eggs, as usual, are numerous — six or eight — sometimes so many as to induce the suspicion that they were not all laid by the same bird." This can hardly apply to the birds around here, as I have examined a great many nests just for the sake of finding a large set, and have never found more than five eggs or young in one nest.

94. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH.—Rare. Have seen young being fed by old birds early in July.
95. *Parus bicolor*. TUFTED TITMOUSE.—Very common.
96. *Parus carolinensis*. CAROLINA CHICKADEE.—Uncommon. An early breeder. Have found fully fledged young on May 24.
97. *Poliophtila cærulea*. BLUE-GRAY GNATCATCHER.—Quite rare. Saw a family of young Gnatcatchers being led about by old ones, on August 12, 1886.
98. *Turdus mustelinus*. WOOD THRUSH.—Common. Regarding the material composing the nest, Dr. Coues says: "As is well known, the nest of this species is saddled on the bough of a bush, shrub, or low tree, and has mud in its composition" ('Birds of the Northwest,' p. 2). In 'Avifauna Columbiana,' p. 34, he contradicts this statement, and speaks as follows: "The nest, placed in a bush or sapling, differs from that of the Robin in having no mud in its composition." As far as the writer's experience goes, and it accords with that of other collectors here, the nest of the Wood Thrush *does* contain *considerable* mud. The number of eggs found in a nest is usually four, and the nest is placed in a small sapling or tree, anywhere from four to twenty feet from the ground.
99. *Merula migratoria*. AMERICAN ROBIN.—Common. Begins nesting about the middle of April.
100. *Sialia sialis*. BLUEBIRD.—Common.

FEEDING HABITS OF *PELECANUS ERYTHRO-* *RHYNCHOS*.

BY N. S. GOSS.

NATURALISTS that have not seen the White Pelicans upon their feeding grounds, have without doubt read Audubon's interesting description of the manner in which the birds unite and drive the fishes into shallow water, where they can catch them, which they cannot well do in deep water, as their skins are honeycombed with air cells that buoy them up like a cork, and prevent their diving,* and they do not plunge for their food when upon the wing, like their cousins, the brown Pelicans, and therefore have to adopt fishing habits suited to shallow waters. I have often noticed the birds in flocks, in pairs, or alone, swimming on the

*The statement in 'North American Birds—Water Birds,' Vol. II, page 137, that this species "dives with great celerity" must be an error.

water with partially opened wings, and head drawn down and back, the bill just clearing the water, ready to strike and gobble up the prey within their reach; when so fishing, if they ran into a shoal of minnows, they would stretch out their necks, drop their heads upon the water, and with open mouths and extended pouches scoop up the tiny fry. Their favorite time for fishing on the seashore is during the incoming tide, as with it come the small fishes to feed upon the insects caught in the rise, and upon the low forms of life in the drift, as it washes shoreward, the larger fishes following in their wake, each from the smallest to the largest eagerly engaged in taking life in order to sustain life. All sea birds know this and the time of its coming well, and the White Pelicans that have been patiently waiting in line along the beach, quietly move into the water, and glide smoothly out, so as not to frighten the life beneath, and, at a suitable distance from the shore, form into line in accordance with the sinuosities of the beach, each facing shoreward and awaiting their leader's signal to start. When this is given, all is commotion; the birds, rapidly striking the water with their wings, throwing it high above them, and plunging their heads in and out, fairly make the water foam, as they move in an almost unbroken line, filling their pouches as they go. When satisfied with their catch, they wade and waddle into line again upon the beach, where they remain to rest, standing or sitting, as suits them best, until they have leisurely swallowed the fishes in their nets; then, if undisturbed, they generally rise in a flock, and circle for a long time high in air.

Off the south coast of Florida (a coral formation) the shoal water often extends out for miles, and the tide is scarcely perceptible. There the birds have no occasion to drive, but gather their food by coursing, and in such places the Brown Pelicans, so expert in dropping upon their prey in deep water, are forced, in order to save their necks unbroken, to feed in like manner; this is especially noticeable in the shallow ponds in the Everglades. Several years ago, in the month of September, I had the pleasure of observing a small flock of the birds fishing in the Neosho River, Kansas. When late at evening they were forced by tired wings to stop in their southward flight, the place selected was in still deep water, at the head of a fall, or rapids, in the stream, where the water for some fifteen rods, and with a depth of about

six inches, was rippling and dashing over the rocks, a natural feeding ground for the fishes. The birds, after first bathing and dressing their feathers, giving particular attention to their primaries, without any unity of action, as hunger moved them, floated down over the rapids, picking up the fishes here and there, until the still water below was reached, when they would rise and fly back, to float down again, leisurely repeating this mode of fishing until it was quite dark.

NOTES ON *GYMNOSTINOPS MONTEZUMÆ*.

BY N. S. GOSS.

THE birds are known by the natives as the 'Oropendula,' also as the 'Inca Bird,' but are generally called 'Yellow-tailed Cassiques,' or rather 'Yellow-tails.' They are quite common in the low forest lands of Central America, upon the Atlantic side, but I did not find them on the Pacific slope, nor upon the high mountain lands. They are social in their habits, going in couples, and generally in flocks of from ten to fifty or more. They are noisy; their voice is harsh, coarse, and discordant, an indescribable jargon; even their whistling notes are not musical. In their food habits they are omnivorous, but seem to prefer fruits and berries, often doing great damage on the plantations when the bananas, plantains and mangos are ripening. For breeding purposes they select large *thorny* trees in an open space where the limbs of other trees do not touch, so as to be beyond the reach of reptiles, monkeys, raccoons, and other climbing nest robbers.

Their pendulous, gourd-shaped nests, which are suspended to the ends of the boughs of the tallest branches, are strongly and ingeniously woven of fibrous strippings from plants and frond-like leaves, with here and there a rootlet; the bottoms are lined with leaves. Some writers state that the birds build their nests of grasses, but I have been unable to find any in those that I have examined, and I am inclined to think *this large species* rarely,

if ever, uses it; and if they do, the blades, so brittle when dry, must be of a very strong hemp-like nature, to long sustain the weight of the nest and its occupants against the wear and tear of the storms and winds.

The entrance is a purse-like slit at the top, the average length of the nest is about three feet, and the diameter at the rounded base, nine to ten inches. I have never found less than five, nor more than twenty-one nests in a tree; they are said, however, to build as many as fifty and even more, but the late growing demand in the United States for bananas has caused the producers, heretofore so indifferent and indolent, to be more watchful, and the large colonies of the birds are fast thinning out. The only eggs that have come under my observation I collected March 13, 1887, at Cayo, a small village on the Belize river, in British Honduras, near its western boundary line. There were thirteen nests in the tree, which was a species of locust; these were all hanging from one bough, from two to three feet apart, and at least seventy-five feet from the ground, but the dense undergrowth, a tangled mass of young palms, bushes and vines, supported the tree, when felled, like a cushion, so that, to my surprise, I was able to save unbroken three sets of fresh eggs, two in each nest. As the number of the broken eggs found in the other nests was the same, and as furthermore the nests were not large enough to rear more than a pair of the birds in each, I think it safe to enter two eggs as a full set, and I am also led to believe, from the great difference in the dimensions of the eggs, and in the size of the male and female birds (see measurements given below), that they are hatched in pairs which, as they go in couples, remain together during life.

First set: 1.49×1.10 , $1.42 \times .96$ inch; ground color bluish white, thinly marked with specks and spots of brownish black, and with dark purple stains.

Second set: 1.49×1.08 , 1.40×1.00 inch; ground color bluish white, clouded and marbled with pale rusty brown, with a few zigzag, hair-like streaks of a darker tint, the clouding thickest upon the largest egg.

Third set: 1.50×1.03 , $1.40 \times .98$ inch; one bluish white, without a mark or stain (an aberrant egg), the other specked and spotted thinly with pale rusty brown, and having a few faint purple stains.

The broken eggs examined were all specked and spotted with either brownish black or pale rusty brown, in marked contrast to each other, the coloring matter by sets, however, largely alike.

A pair of the birds, which I shot and mounted in the winter of 1886 at Santa Tomas, Guatemala, measure as follows, in inches:

Sex.	Length.	Stretch of wing.	Wing.	Tail.	Tarsus.	Bill.
♂	22.00	32.00	9.75	8.25	2.00	3.60
♀	16.50	24.00	7.50	5.75	1.70	2.30

ON THE AVI-FAUNA OF PINAL COUNTY, WITH REMARKS ON SOME BIRDS OF PIMA AND GILA COUNTIES, ARIZONA.

BY W. E. D. SCOTT.

With annotations by J. A. Allen.

(Continued from Vol. IV, p. 205.)

178. *Piranga ludoviciana*. LOUISIANA TANAGER.—Migrant and summer resident in the pine forests of the Catalina and Pinal Mountains, where they breed. They first appear in the spring about April 15, in the live oak belt of the Catalinas, and remain in numbers for about two weeks; they are to be seen as late as May 20. After this they are absent for about four or five weeks, when they return in much greater numbers than in the spring, and remain till late in September, being most abundant in the latter part of August and the first two weeks of September. This is in the Catalinas at an altitude of about 4000 feet.

They undoubtedly breed in the pine forests of the Catalinas, for the birds observed returning in late July are first adult males in full though very worn plumage, followed in a few days by the females and immature plumaged birds of the year. They soon congregate in large flocks, as many as fifty often being together, and at this time of year their food seems to be almost exclusively wild berries and small fruits of various kinds, particularly a kind of grape. They were noticed in the pine forests of the Catalinas as early as April 24 (see Auk, Vol. II, No. 4, p. 354, October, 1885), and my latest record of them in the cañon near my house was September 29, 1884, when they were observed in small numbers, all apparently young birds of the year.

179. *Piranga hepatica*. HEPATIC TANAGER.—Observed only in the oak region of the Santa Catalinas (5000 feet), where they are summer residents, breeding late in the season, from May 6 to 9, and remain till about September 10.

A pair taken July 12, 1884 (♂, No. 533, ♀, No. 534), were breeding, the female having finished incubating only three or four days before. The nest was on the outer branch of a live oak, and was an entirely similar structure to that of *Piranga erythromelas*, and contained three young birds.

From specimens taken early in September it appears that the adult male of this species assumes in fall a plumage very like that of the adult female. I have also found males in a similar though not identical plumage, mated and breeding late in June, which would seem to indicate that the brilliant plumage of the male is not acquired until the birds are at least two years old. The males noted breeding in the greenish yellow plumage were quite as accomplished songsters as the brilliant males, but I think the females do not sing.

180. *Piranga rubra cooperi*. COOPER'S TANAGER.—A common migrant and summer resident about Tucson, Riverside, Florence, and at Mineral Creek, as well as in the San Pedro valley. They seem more rare than either of the other species of Tanager in the oak region of the Catalinas, and though a few breed, for they were observed all through spring, summer, and early autumn, no nests were discovered. At this point, altitude 4000 feet, the earliest record of the spring arrival is May 2, and the latest birds observed in fall were seen September 10, when one was taken and two others seen.

Of this subspecies I am also inclined to think that the males do not assume the brilliant phase of plumage till at least two years old, as I have taken yellowish colored males in June in full song and, from the condition of the testes, evidently breeding.

Of the typical *Piranga rubra* I have also a specimen of an adult male bird taken near Tarpon Springs, Florida, in October, that is in the same brilliant plumage as in the spring. This bird had evidently only finished the moult a short time, as the feathers were wholly unworn and very brilliant. I also have notes of two other adult male birds of this species in the red plumage seen by me near the same locality in October, 1886.

In conclusion I may summarize my opinion on this subject by stating that I think that the fully adult males of *P. erythromelas* and *P. hepatica*, after having assumed the brilliant plumage of the breeding season, in the fall assume a plumage similar to that of the adult female, but that *P. rubra* proper, and probably the subspecies *cooperi*, once having assumed the brilliant plumage, wear it always. In the collection is a Tanager (No. 2434, ♂ ad., taken in the Catalinas, altitude 4000 feet, on May 6, 1885), that I can only refer to this subspecies. It has no regular pattern in the coloration, but is curiously marked at random with dark green, light pink and golden yellow in patches. The plumage is not at all worn, and the bird can only be regarded as a freak or anomaly.

181. *Progne subis*. PURPLE MARTIN.—Observed rather uncommonly about Tucson.

182. *Petrochelidon lunifrons*. CLIFF SWALLOW.—Observed in numbers about Riverside in April, 1882.

183. *Chelidon erythrogaster*. BARN SWALLOW.—Common migrant throughout the region, and breeds rather sparingly in the Catalinas, at an altitude of 5000 feet. The species seems much more abundant as a fall than as a spring migrant. On October 12, 1884, they were abundant in the Catalinas, at an altitude of 4000 feet.

184. *Tachycineta bicolor*. TREE SWALLOW.—Observed only about Tucson in early spring. They were noted in small numbers on March 10, 1886. Mr. Herbert Brown tells me he regards the species as rare.

185. *Tachycineta thalassina*. VIOLET-GREEN SWALLOW.—In the Catalinas this is the commonest of the Swallows, but, curiously, at the lower altitudes (4000 feet) in the spring it is rare or does not occur. In the spring of 1885 I found it common in late April on the summit of the mountains in the pine woods, but though I had looked for it carefully all the preceding six weeks at the altitude of my house I only saw a single individual, on March 14. In the late summer and fall from August 15 till October 7, it was common in the region near my house. It probably breeds in the pines of the Catalinas in numbers (see Auk, Vol. II, No. 4, p. 354).

186. *Clivicola riparia*. BANK SWALLOW.—“Breeds about Fort Lowell” (*Herbert Brown*). I have no records of its occurrence except at this point, where I saw it in May and June, 1884.

187. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW.—“Rather rare about Tucson, arriving about the middle of March” (*Herbert Brown*). Mr. Brown very kindly allowed me to examine several specimens of this species in his collection, taken near Tucson.

188. *Ampelis cedrorum*. CEDAR WAXWING.—Mr. Brown has specimens of this species in his collection, taken by Mr. Nelson near Tucson, in May and June. I have no notes of its occurrence at other points in the region under consideration.

189. *Phainopepla nitens*. PHAINOPEPLA.—This species has been discussed at some length (see Auk, Vol. II, No. 3, pp. 242-246, July, 1885, paper on ‘Breeding of Some Arizona Birds’), and there is little to add here. I met with it at every point visited by me up to an altitude of about 5000 feet. It is migratory, except about Tucson and in the region to the southward, and here only winters in small numbers. It apparently breeds throughout its range, raising at least two broods and probably three. In the Catalinas, at 4000 feet, my earliest spring record is April 25, and I have notes of their occurrence here till November.

190. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE.—Resident up to an altitude of about 5500 feet. Rather common throughout the year about Tucson, and observed in suitable localities throughout the area under consideration. In the Catalinas (altitude 3700 feet), a nest of this species, taken April 1, 1885, contained five eggs almost ready to be hatched. I think only one brood is raised here.

191. *Vireo gilvus* [swainsoni. WESTERN] WARBLING VIREO.—Common spring and fall migrant, and a few breed in the Catalinas at as low an altitude as 3500 feet. All my notes in regard to the species were made in the Catalinas, which is the only point where I have met with it. Mr. Brown has found it as a migrant about Tucson. In the Catalinas, altitude about 4000 feet, it arrives about the middle of April and remains until about October 1, being most common during the first two weeks of September. In 1885, on June 9, I took a nest of this species near my house, which contained two eggs nearly ready to hatch. The nest was similar to that of the species in the East in every way (♀ parent, No. 2779). For an account of the occurrence of this species in the pine region of the Catalinas, see Auk, Vol. II, No. 4, p. 354, October, 1885.

[A series of upward of twenty specimens of the Western Warbling Vireo in Mr. Scott's collection makes evident the propriety of restoring this form to formal recognition in our nomenclature, as Mr. Ridgway has recently done in his 'Manual' (p. 471). The characters of smaller size, slenderer bill, and more olivaceous coloring below are well borne out by the series before me.—J. A. A.]

192. *Vireo solitarius cassinii*. CASSIN'S VIREO.—All the data in regard to this subspecies were collected in the Santa Catalinas, altitude 4000 feet and above. My notes indicate this to be a rather uncommon spring and fall migrant. Observed in spring from April 18 to May 15.

[Of twelve specimens of this subspecies in Mr. Scott's collection seven were taken in April and May (April 6 to May 10), and five in September and October (Sept. 10 to Oct. 7), indicating, as Mr. Scott says, that it occurs merely as a spring and fall migrant. The fall specimens, as would be expected, are much more olivaceous than those taken in spring.—J. A. A.]

193. *Vireo solitarius plumbeus*. PLUMBEOUS VIREO.—All my experience with this subspecies was obtained in the same locality as the last, where it had about the same distribution and time of spring arrival, except that it was much commoner, and particularly so in the late summer and early fall months. That it breeds at this point cannot be doubted, though at an altitude in the mountains greater than 7000 feet, for I have met with old birds in worn plumage as early as the middle of July. I also took a single example of the species in the pine woods of Mount Rice, Santa Catalinas, altitude 10,000 feet, April 30, 1885 (No. 2347, ♀).

[Mr. Scott's sixteen specimens of the Plumbeous Vireo were all but three taken in May, the earliest date being April 30, and the latest dates July 17 and 19. The July specimens are in exceedingly worn plumage. Of the thirteen May specimens, about one half were taken during the first week, and the remainder during the last week of this month (May 23-30); and the contrast between the condition of the plumage in the two series is striking, through the much more abraded state of the feathers in the birds taken near the close of the month, indicating that the birds were probably summer residents and breeding.—J. A. A.]

194. *Vireo huttoni stephensi*. STEPHENS'S VIREO.—The only specimens of this subspecies that have come under my observation are the two

that I have already recorded from the pine region of the Santa Catalinas (see Auk, Vol. II, No. 4, p. 354, Oct., 1885), and an additional specimen procured on Mount Rice in the same range on April 30, 1885. Mr. Brown told me of a single specimen taken by him in the Quijotoa Range, in late February, I think. This bird is now in the collection of Mr. H. W. Henshaw.

195. *Vireo belli pusillus*. LEAST VIREO. — Common migrant and summer resident, breeding throughout the region up to an altitude of 4000 feet. In the Catalinas they arrive about the 25th of March and by April are common. They are apparently mated on arrival, and at once proceed to build nests and lay eggs. Two broods are generally raised and three eggs are commonly found to form the brood. They leave the Catalinas early, by September 5, but are to be found on the plains about Tucson much later.

196. *Vireo vicinior*. GRAY VIREO. — For the records of this species and its breeding habits I refer the reader to a paper already presented in this journal, entitled 'On the Breeding Habits of Some Arizona Birds' (Auk, Vol. II, No. 4, pp. 321-326, October, 1885).

197. *Helminthophila luciae*. LUCY'S WARBLER. — A common migrant and summer resident in suitable localities, up to an elevation not exceeding 4000 feet, throughout the territory under consideration.

In the Catalina Mountains and in the valleys of the Gila, Santa Cruz, and San Pedro Rivers these birds bred in numbers, being among the commoner species present from late March and early April until the latter part of August. The first arrivals in 1885 in the Santa Catalinas, altitude 3500 feet, were March 29, a male taken and another seen; March 30, one taken and three others seen, all apparently males. On April 1 the arrival was general, when two were taken and many others seen.

The birds on arrival were about ready to breed, and in a very few days nesting was begun. Late in May I took young birds which were shifting for themselves, and some of the adult birds were just laying, so that probably two broods are generally reared.

198. *Helminthophila virginiae*. VIRGINIA'S WARBLER. — The only point where this species was observed was in the Catalinas, and generally at an altitude exceeding 4000 feet. That they breed at this altitude, or a very little higher up on the sides of the mountains, I feel sure, as I took old and young birds during the third week in July, 1884, not uncommonly. The old birds were then moulting. In 1885, in the same general locality, altitude 3500 feet, the first arrival was noted April 16—only one seen, a male (No. 2169).—For reference to the occurrence of this species in the pine forests of the Catalinas, see Auk, Vol. II, No. 4, p. 352, Oct., 1885.

199. *Helminthophila ruficapilla gutturalis*. CALAVERAS WARBLER. — Migrant in the Catalinas at 4000 feet, which is the only point where I have obtained records of its occurrence. Even here I did not observe it during any of the spring migrations, though it was quite common from September 7, 1884, when the first arrivals were noted, until the 20th of that month, after which time it was not observed.

200. *Helminthophila celata lutescens*. LUTESCENT WARBLER.—Rather common spring and fall migrant in the Catalinas, altitude 4000 feet, and it probably breeds in the pine forests of this range in the higher altitudes. (See Auk, Vol. II, No. 4, p. 352, October, 1885.) The first spring arrivals (Catalinas, at 4000 feet) in 1885 were on April 3, and it was quite common until May 6 of the same season. Not seen later. In the fall I observed it in the same locality from September 3 until the first week in October.

201. *Dendroica olivacea*. OLIVE WARBLER.—The only notes of this species which I have, have been already recorded in this journal. (See Auk, Vol. II, 1885, pp. 172 and 352.)

202. *Dendroica æstiva* [morcomi. WESTERN] YELLOW WARBLER.—A rather common migrant and summer resident throughout the region, and found breeding in the Catalinas up to 4500 feet. My earliest spring record is March 30, 1885.

[Eleven specimens in Mr. Scott's collection show this newly named subspecies to have a more than usually satisfactory basis. Mr. Coale founded his separation (Bull. Ridgw. Orn. Club, No. 2, April, 1887, p. 81) of this form apparently on specimens from Fort Bridger, Utah. Judging from his description our Arizona specimens are considerably paler than Utah ones. A female (No. 2331) taken April 27, 1885, is so very pale as to show no decided yellow below, the lower parts being merely pale, soiled, yellowish white, and there is no decided yellowish anywhere except on the top of the head, upper and lower tail-coverts, edges of the quills, and inner vanes of the tail-feathers. The other spring females show a more or less decided wash of yellow over the lower parts, and of greenish yellow above. In one the yellow is a little stronger, and there are slight traces of reddish streaks on the sides of the breast. Both males and females are strikingly different from *D. æstiva* of the East, and the wonder is that the form was not earlier separated, judging by the Arizona specimens.—J. A. A.]

203. *Dendroica coronata*. YELLOW-RUMPED WARBLER.—Not nearly so common as *D. auduboni*, but I think of regular occurrence as a migrant. I have seen several specimens in the collection of Mr. Herbert Brown, of Tucson, one of these being taken on January 28, 1886.

204. *Dendroica auduboni*. AUDUBON'S WARBLER.—A common migrant, and a few probably breed in the pine forests of this region. They winter in small numbers in the valley of the Santa Cruz, about Tucson, and also in the valley of the San Pedro River. (For further references to the species see Auk, Vol. II, No. 4, p. 352, October, 1885.)

205. *Dendroica graciae*. GRACE'S WARBLER.—The only point where I have observed this species is in the pine forests of the Santa Catalinas in the spring. (For details see Auk, Vol. II, No. 4, p. 352, October, 1885.) A pair that were apparently mated and about to nest, were taken in the pine forests of Mount Rice, Catalina Range, April 30, 1885. They are catalogued as No. 2349 ♂, and No. 2348 ♀, in the collection made by me in this region.

206. *Dendroica nigrescens*. BLACK-THROATED GRAY WARBLER.—

This species I found quite commonly as a migrant in the Catalinas, and it breeds rather rarely in the same range at an altitude exceeding 4500 feet. They arrive late in March (Catalinas, 4000 feet), and are not very common during the spring migration. A few are to be noted at a little higher elevation all through the summer months, and in the early fall their numbers are very appreciably augmented. They remain in this same locality till about the first week in October. (For reference to their occurrence in the pine forests of the Catalina Range, see Auk, Vol. II, No. 4, p. 352, October, 1885.) On June 15, 1885, I took two fully fledged young of this species in the Catalinas at a little above 4000 feet. They are catalogued, "♂ juv. 2809, ♀ juv. 2810."

[These two examples, and two others taken July 12, do not appear to differ in color or markings from birds of the year killed in October.—J.A.A.]

207. *Dendroica townsendi*. TOWNSEND'S WARBLER.—Found only as a migrant in the Pinal and Catalina Ranges. The following are the records transcribed from my journal:

"Mineral Creek, Gila County, altitude 5000 feet, took ♂, No. 153, November 2, 1882. The only representative of this species observed here."

"Catalinas, 4000 feet, September 8, 1884, one seen, the first of the fall migration. Same locality, September 28, 1884, took ♂, No. 931, the only one seen. September 29, took ♂, No. 957, and saw several others—this at about 3500 feet. Same locality, May 6, 1885, general arrival, and the first seen this spring. They were quite common in the oak belt, altitude a little over 5000 feet. Took four and saw several others."

208. *Dendroica occidentalis*. HERMIT WARBLER.—Among the rarest Warblers of the region apparently. I have met with it only on one occasion—September 29, 1884, in the Catalina Range, altitude 3500 feet,—when I took two, both males (Nos. 958 and 959), and saw two others.

209. *Seiurus noveboracensis notabilis*. GRINNELL'S WATER THRUSH.—In the Catalinas, at an altitude of about 3500 feet, on September 2, 1884, I took an adult female Water Thrush (No. 780), and on the following day an adult male (No. 797), both of which I refer to this subspecies. These are the only examples I have met with and I did not see any specimens in Mr. Brown's collection.

210. *Geothlypis macgillivrayi*. MACGILLIVRAY'S WARBLER.—A rather common migrant, and a few probably breed in the Catalinas, as I have taken young birds early in August. After the 9th of this month they were not rare. They arrive early in May and remain till the last of September, the latest record I have being the 25th of that month. These observations were made in the Catalina Range, altitude 4000 feet. Mr. Brown regards it as a rather common migrant about Tucson, where I also saw it late in April, 1884, in numbers.

211. *Geothlypis trichas occidentalis*. WESTERN YELLOW-THROAT.—"A rather common migrant, and breeds about Tucson, but is not found in winter at this point." (Herbert Brown.) Mr. Brown also tells me that it arrives in the vicinity of Tucson about the first week in March, and remains in numbers late into October, and is occasionally seen in the early part of November.

[I find a single specimen in fall plumage in Mr. Scott's collection, labelled as follows: "Catalina Mill, 11 Oct., 1883. ♀, 148."—J. A. A.]

212. *Icteria virens longicauda*. LONG-TAILED CHAT.—Common migrant and summer resident in suitable localities up to an altitude of 4000 feet throughout the region. In the Catalinas, altitude 3000 to 4000 feet, it arrives early in May, about the 2d to 5th, and remains till about the 20th of September, but by the middle of that month most of the representatives of the species have left this point.

213. *Sylvania pusilla pileolata*. PILEOLATED WARBLER.—Rather common migrant, particularly in fall. Frequents the neighborhood of streams and damp places. It is not improbable that a few may breed at high altitudes in the Catalina Range. This inference is made from the very early return in fall to the region most studied in these mountains, altitude 3000 to 5000 feet. In the Catalinas, between the elevations just indicated, the species is rather uncommon in the spring, arriving during the last week in April. By the first of June they are no longer to be found, but the first of the fall migrants arrive about August 1, and by the middle of the month they are common, remaining until late in September, and being at times during that month very abundant.

214. *Setophaga ruticilla*. AMERICAN REDSTART.—The only record made of the occurrence of this species was the capture of an adult male in the Catalina Mountains, altitude 4500 feet, August 12, 1884. Mr. Herbert Brown has also taken it on one occasion near Tucson in spring. So far as I am aware these are the only records for the Territory of Arizona, and in the region here treated the bird must be considered rare.

215. *Setophaga picta*. PAINTED REDSTART.—This species I have met with only in the Catalina Range, and at an altitude exceeding 4000 feet. It is apparently most abundant as a summer visitor in the pine forests of these mountains, though I found them breeding as low down as five thousand feet in the evergreen oak belt. This was on two occasions, the young having just left the nest both times. The birds seem to prefer the vicinity of water, and are not to be met with far from such localities.

As migrants, at the lower altitude, when they occur, they are quite rare in the spring, but not at all uncommon in the fall.

In the Catalinas, altitude 4000 feet, the earliest spring arrivals that I have noted were on March 24, 1885, when one was taken and another seen. These were all that were noted at this point, or outside of the pine forests that spring. (For record of occurrence in the pine region, see Auk, Vol. II, No. 4, p. 353, October, 1885.) The species is frequent at the lower altitudes through September, but by October 1 all have apparently gone.

216. *Cardellina rubrifrons*. RED-FACED WARBLER.—This species was met with only in the pine forests of the Catalinas, where it was common late in April, 1885 (see Auk, Vol. II, No. 4, p. 353, October, 1885). The only additional notes that I have were made in the pine forests of Mount Rice, in the same range, April 30, 1885, when a few were noted in pairs, but they were very shy.

(To be concluded.)

NEW FORMS OF NORTH AMERICAN *CHORDILES*.

BY ELLIOTT COUES.

EXAMINATION of material in the American Museum of Natural History, in company with Mr. Allen and Mr. Sennett, shows that there are four subspecies of *Chordiles popetue* in the United States. The mistake has hitherto been that we have called all the light Western forms *C. henryi*, and have ignored the distinction of the Florida bird. The four forms are:

1. *Popetue*, large, glossy black predominating on the upper parts, and underparts fully barred with blackish and white in about equal amounts, the rufous tints being slight on any part of the plumage. *Hab.* Eastern North American Province of Baird, the breeding range exclusive of the Gulf States.

2. *Sennetti*, large, silvery grayish-white predominating above, the white below greatly in excess of the narrow, irregular or broken, dark bars, and little or no rufous anywhere. *Hab.* Dakota to Texas, in any treeless country. Types 65,490, Mus. Smiths. Inst., formerly 3301, Mus. E. C., 50 miles west of Pembina, Minn., July 16, 1873, and 4927, Coll. George B. Sennett, Wharton Co., Texas, May 27, 1887.

3. *Henryi*, large, rufous tints everywhere prevailing, dark lines on underparts about equal in amount to the tawny white interspaces. *Hab.* Western North America; geographical distribution not yet fully worked out.

4. *Chapmani* (Sennett's MS.), small, wing half an inch less than in *popetue*, with which the coloration agrees. *Hab.*, Florida to Texas. Type No. 847, Coll. Frank M. Chapman, to which accomplished young ornithologist the new form is dedicated by Mr. Sennett, taken May 19, 1887 at Gainesville, Florida.

OBSERVATIONS ON THE NOCTURNAL MIGRATION OF BIRDS.

BY FRANK M. CHAPMAN.

MR. W. E. D. SCOTT's papers on this subject (Bulletin Nuttall Ornithological Club, Vol. VI, pp. 97, 188) have not to my knowledge been followed by any of a similar character, and, the facts to be determined being of such vital interest, I feel urged to present the results of my own observations, limited though they

be, as a slight contribution to the larger amount of data we must amass before arriving at any strictly accurate conclusions concerning every phase of the nocturnal journey of migrating birds.

The following notes were obtained with the assistance of my astronomical friend, Mr. John Tatlock, Jr., on the night of September 3, 1887, at Tenaflly, New Jersey, about three miles west of the Hudson River, Mr. John F. Paulison most courteously having placed his observatory and 6½-inch equatorial telescope at our disposal.

The most important facts to be determined in observations of this nature are, of course, the height at which these flights occur, and also the number of birds which cross the field of view at any given time.

The method adopted was the same as that used by Mr. Scott, the telescope being pointed at the full moon, which served as a background, showing with wonderful distinctness the birds as they crossed, the observer calling to the recorder as each bird came into view, the latter noting the time.

These observations appear in the following table, where also are given the apparent altitudes of the moon computed at ten minute intervals during the period of observation.

From the altitudes are computed the heights at which the birds in the field at that time were probably flying.

The problem of determining this height exactly is not, so far as we can now judge, capable of definitive solution, for the reason that we have no means of ascertaining the distance of the bird from the observer.

In this case, therefore, we are compelled to resort to an hypothesis of the probable distance at which a bird was visible, and we thus assumed that the least distance from the observer at which a bird could be seen was one mile, the greatest five miles, feeling sure that, in accepting these limits, we do not over-estimate the greater distance.

In this connection the appearance of the birds as they crossed the field is of great importance, those which passed more slowly being obviously the ones at the greater distance; and in this class are included the few possessing some marked characteristic of flight which rendered identification possible; these were as follows: at 8.34 a Grackle, at 9.22 a Carolina Rail, at

9.26 two Carolina Rails, at 9.30 a large Snipe, at 9.33 a Carolina Rail, at 10.15 a Carolina Rail, and at 10.44 a Duck.

The major portion, however, passed at what may be termed the middle distance, or, in other words, too rapidly for us to more than distinguish that they were birds. During the first half hour of observation a number of birds were seen flying upward, crossing the moon, therefore, diagonally, these evidently being birds which had arisen in our immediate neighborhood, and were seeking the proper elevation at which to continue their flight, but after that time the line of flight was parallel to the earth's surface, the general direction being south.

In the appended table the figures given in the vertical columns headed 1, 2, 3, etc., are the numbers of birds observed per minute, the time being found by adding to that of the left-hand column the desired number at the head of the column following; to the right appear the totals and altitudes.

In conclusion I desire to express my thanks to Mr. Paulison for so courteously permitting us to use his observatory, and especially to my friend Mr. Tatlock, who, in preparing its astronomical portion, deserves entire credit for whatever value this paper may possess.

TABLE SHOWING TIME AND APPROXIMATE HEIGHT AT WHICH THE BIRDS OBSERVED FLEW.

Time	0	1	2	3	4	5	6	7	8	9	Total No. Birds	Moons app. alt.	Height, inf. limit.	Height, sup. limit.
H.M.													FT.*	FT.*
8.00	1	...	...	...	...	...	...	...	...	...	1	7.0	600	3,200
8.10	1	...	...	...	...	...	...	...	...	...	1	8.8	800	4,000
8.20	...	...	...	...	1	...	...	...	...	...	1	10.6	1000	4,900
8.30	2	...	...	...	1	2	...	...	...	1	6	12.4	1100	5,700
8.40	1	2	1	...	1	1	2	4	7	1	20	14.2	1300	6,500
8.50	1	1	1	2	4	3	...	2	7	3	24	16.0	1500	7,300
9.00	...	1	...	2	...	...	...	2	2	3	10	17.7	1600	8,000
9.10	5	1	2	2	4	...	3	...	2	2	21	19.5	1800	8,800
9.20	7	...	6	5	4	1	7	4	5	5	44	21.2	1900	9,500
9.30	4	1	5	6	6	4	3	1	2	2	34	22.8	2000	10,200
9.40	...	2	2	...	1	4	2	2	1	1	15	24.5	2200	11,000
9.50	...	1	1	...	1	1	...	...	...	...	4	26.1	2300	11,600
10.00	3	...	...	1	...	...	4	3	4	1	16	27.6	2400	12,200
10.10	1	...	1	1	1	3	1	1	2	1	12	29.2	2600	12,900
10.20	3	...	5	1	...	...	1	1	1	1	13	30.8	2700	13,500
10.30	...	...	4	...	1	1	3	2	...	...	11	32.1	2800	14,000
10.40	...	...	1	1	1	3	1	4	2	5	18	33.6	2900	14,600
10.50	...	2	1	1	1	...	2	...	1	3	11	34.8	3000	15,100

*Calculated to nearest 100 feet.

NOTES ON THE *PEUCÆA RUFICEPS* GROUP,
WITH DESCRIPTION OF A NEW SUBSPECIES.

BY GEORGE B. SENNETT.

A NUMBER of Rufous-crowned Summer Finches recently collected by Mr. Wm. Lloyd in Western Texas, led me to examine into the history of all the forms of the genus with the following results.

After a thorough study of the abundant material in all forms which I have at hand, and a careful analysis of the text of the original describers, it seems to me certain that an error was made in the naming of var. *eremæca* (see Bull. Nuttall Ornith. Club, Vol. VII, Jan. 1882, p. 26) as distinct from *boucardi* (see P. Z. S., 1867, pl. 1. pp. 1, 2).

For the benefit of those not having access to the 'Proceedings' of the Zoological Society of London, 1867, I will quote from Mr. Sclater's observations on page 2: "I have had three indifferent skins of this species (collected by M. Botteri, near Orizaba) for several years without being able to identify it satisfactorily. M. Boucard's recent collections having contained excellently prepared examples, I have been enabled to make a better examination of it and to satisfy myself that it is, as far as I can tell, undescribed." Also on same page he gives "*Hab.* in Mexico meridionali, Orizaba (Botteri); La Puebla (Boucard)." Mr. Sclater also labelled the Orizaba specimens "*boucardi*." More than twenty years ago, when very little was known of this group, Mr. Sclater evidently saw that the Orizaba birds were the same as those from La Puebla, and was particular to say so, and to put Orizaba first in the list of localities given as its habitat.

The plate evidently figures the more adult specimen from La Puebla, and the Latin diagnosis does not point particularly to the black shaft lines of the back, which we recognize as distinguishing it from other forms, but otherwise answers the description of the Orizaba specimens as well as the La Puebla ones. Having before me one of the original Orizaba specimens, and adults from La Puebla and the city of Mexico, and also both adults and young from Western Texas, I am decidedly of the opinion that Mr. Sclater's Orizaba specimens of *boucardi* were in the first

year's plumage, *i. e.*, in the plumage before the moult of the second year. Now Mr. Brown's birds, from Kendall Co., Texas, were taken in January, February, and March, and were identical with the Orizaba skin, as stated in his description of *eremæca* referred to above. These birds were undoubtedly immature in plumage, although full-grown. I do not see how the Orizaba bird, described and labelled by Mr. Sclater, can be other than *Zonotrichia* (now *Peucaea*) *boucardi*. There is nothing left therefore but to call *eremæca* a synonym of *boucardi* and extend the latter's habitat to Central Texas. Having before me a great number of specimens of this group, from widely extended localities, I can more thoroughly establish *boucardi*. I am also able to separate the Arizona form from *boucardi*, where it has with doubt and hesitation been placed.

Before giving a full description of each of the three races, I will state comprehensively their characteristics and distribution.

Peucaea ruficeps (Cass.). Small, olive-gray and ferruginous; confined to the Pacific slope.

Peucaea ruficeps boucardi (Scl.). Large, with long bill; dark gray and reddish brown with dark shaft-lines on back; confined to the Gulf slope of Mexico and Texas.

Peucaea ruficeps scottii, subsp. nov. Large, with short, stout bill; light ash and chestnut, without olive or ferruginous, and without black shaft-lines on back; table-lands and mountains of Arizona, New Mexico (?) and Western Texas (?).

I take pleasure in naming this new form for Mr. W. E. D. Scott, in recognition of his excellent work on the ornithology of Arizona.

The two forms *boucardi* and *scottii* seem to meet in that high part of Western Texas that lies between the Pecos and the Rio Grande Rivers. Here the bills of both seem to be blacker, especially on the lower mandible; the wings and tails also seem to be darker brown than in typical specimens of either form.

The three forms of the Rufous-crowned Sparrow may be characterized as follows:—

***Peucaea ruficeps* (Cass.). RUFIOUS-CROWNED SPARROW.**

Adult: Small; upperparts rusty or ferruginous chestnut, the edgings of the feathers olive-gray. This rusty chestnut of back usually takes, in prepared skins, the form of long and broad streaks showing no dark shaft-lines. Tail rufous. Six adult males average: wing, 2.30; tail, 2.58; culmen, .43; tarsus, .75 inch.

Habitat. Pacific slope (California).

Peucaea ruficeps boucardi (Scl.). BOUCARD'S SPARROW.

Adult: Larger in every part than *ruficeps*. The crown patch alone of the upperparts is dark chestnut, and is more restricted than in *ruficeps*. The strongly marked edgings of the feathers gives the dorsal region a brownish gray appearance. The centre of these feathers is brown, and the shaft-lines are dark and more or less conspicuous; very old and much worn specimens have only traces of dark shaft-lines. Tail and wings brown, edged with rufous. There is none of that rusty appearance which predominates in *ruficeps*; sometimes traces of olive are noticed on the gray of back.

Young: Similar to adult, but without any reddish brown on back, though with black shaft-lines, thus giving the upperparts a dark gray appearance with black streaks.

Twelve adult males average: wing, 2.62; tail, 3.02; culmen, .50; tarsus, .81 inch. Females have wings and tails a little smaller.

Habitat. Eastern Mexico (heights of Vera Cruz, Orizaba, Puebla, and City of Mexico) and Texas (Kendall and Presidio Counties).

Peucaea ruficeps scottii, subsp. nov. SCOTT'S SPARROW.

Adult: Large; tail averaging half an inch longer than in *ruficeps*; bill short and stout, but little if any larger than in *ruficeps*, and darker. Upper parts pale chestnut, edged very finely on crown but more strongly on dorsal region with light ash. No dark shaft-lines. The edgings are not so heavy as in *ruficeps*, and being of pale ash rather than of olive-gray, give this form an ashy brown rather than a ferruginous appearance. This same light ashy brown effect is plainly shown when compared with the dark gray and black shaft-lines of *boucardi*. This narrow edging of the feathers gives the back a mottled rather than a streaked effect, as seen both in *ruficeps* and *boucardi*. Underparts paler than in either *ruficeps* or *boucardi*. Tail and wings brown edged with rufous. Fall and winter specimens of young of the year are darker, and the chestnut of back is redder and more in streaks.

Young: Streaked above with reddish brown and gray. Below ash, lightly streaked with black, the lines being most pronounced upon the breast. There is a slight wash of tawny on breast, sides, flanks, and under tail-coverts.

I give two specimens as types: (1) No. 5247, collection of G. B. Sennett, collected by W. E. D. Scott, Pinal Co., Arizona, March 27, 1885. Collector's No. 1979. Wing, 2.72; tail, 3.20; culmen, .44; tarsus, .32 inch.

(2) Collection of American Museum, collector's No. 1884, collected by W. E. D. Scott, Pinal Co., Arizona, March 14, 1885. Wing, 2.65; tail, 3.15; culmen, .43; tarsus, .84.

Thirty-two males average: wing, 2.63; tail, 3.08; culmen, .45; tarsus, .81. Eleven females average: wing, 2.51; tail, 2.96; culmen, .445; tarsus, .81.

Habitat. Highlands of Arizona. New Mexico (Silver Springs)? and Western Texas (Presidio and Mitchell Counties)?

DESCRIPTIONS OF A NEW SPECIES AND TWO NEW SUBSPECIES OF BIRDS FROM TEXAS.

BY GEORGE B. SENNETT.

Psaltriparus lloydi, sp. nov. LLOYD'S BUSH-TIT.

Adult Male.—Upper parts lead-color, whitening on forehead, and somewhat darker on back. Sides of head glossy black, which extends backward on each side, meeting and forming a collar on lower back of neck. Underparts ashy white, darker toward the tail, and black on chin. Bill and feet glossy black. Wings and tail light brown, edged with ashy plumbeous.

Adult Female.—Similar to male but with ear-patches clear glossy brown instead of black. More or less of black is seen back of auriculars and in collar. Young similar to adults.

Nest pensile, purse-like, composed of mosses, flower stems, and lichens, having a lining of feathers. Eggs pure white. Breeds in pineries of high altitudes.

Habitat. Mountains of Western Texas, between the Pecos and Rio Grande Rivers.

The following data are taken from specimens in my collection obtained in Limpia Cañon, near Fort Davis, Presidio County, at altitudes of from 6200 to 6400 feet, by Wm. Lloyd, for whom I take pleasure in naming this interesting new species. The first two specimens named below are the types.

	Wing.	Tail.	Culmen.	Tarsus.
No. 4895, ♂, June 16, 1887.....	1.93.....	2.25.....	27.....	57
No. 4896, ♀, June 16, 1887.....	1.96.....	2.30.....	30.....	67
No. 4897, ♀, June 16, 1887.....	2.00.....	2.27.....	30.....	65
No. 4898, ♀, June 16, 1887.....	1.90.....	2.23.....	30.....	58
No. 4913, ♀, June 21, 1887.....	2.00.....	2.30.....	30.....	65
No. 4912, ♂, juv., June 21, 1887..	1.95.....	2.27.....	27.....	62
No. 4903, ♀, juv., two-thirds grown, June 17, 1887.				
No. 4904, ♂, juv., two-thirds grown, June 17, 1887.				

Nest with one egg taken in Limpia Cañon, June 21, 1887, altitude 6200 feet, fastened to twigs of cedar seven feet from the ground. The cedar tree was twenty-five feet high, situated on a divide between two ravines. Identification complete, since the female was discovered in the nest, and the male was perched close by. Nest six inches long; largest diameter, which is at the bottom, 3 inches; smallest diameter, which is near the top under the twigs that supported it, 2.5 inches. The egg measures .58 inch in length and .42 in breadth.

This species is distinct from *P. melanotis*, Black-eared Bush-Tit, by reason of total absence of both brown on back and rufous on underparts. It is easily distinguished from *P. plumbeus* by the collar, and by the black instead of ashy brown on sides of head. Aside from the head markings it is more like *P. plumbeus* in color than *P. melanotis*, but it has a much whiter throat and a larger bill.

Nyctidromus albicollis merrilli, subsp. nov. MERRILL'S
PARAUQUE.

Adult male:—Upper parts gray, washed lightly with brown; the feathers have black shaft-lines, which are very delicate on sides of crown and neck, heavier on rump, heavier still on back, and extra broad on centre of crown and occiput, giving the effect of a black central crown patch. The scapulars have the inner webs gray and the outer webs barred and blotched with black, the whole broadly margined with white, creamy white, and light buff, presenting a rich velvety effect. Primaries brownish black; secondaries spotted with black and buff; tertiaries gray with heavy black shaft-lines. Coverts tipped broadly with light buff and cream white. Edge of wing buff. A broad bar of white extends diagonally across both webs of five (sometimes six) of the outer primaries; this white wing-patch is partly covered by the secondaries in the closed wing. The two central tail-feathers gray, herring-boned down the shaft with black; the next pair of feathers are darker gray and have broader black markings; the third pair are pure white almost their entire length, sometimes having more or less margin of brown on outer web; the fourth pair of feathers are wholly white on inner web and mostly brownish black on outer; outer tail-feathers brownish black. Chin black, barred with buff. Large throat-patch of white. Underparts light buff, barred with black, lightly on belly, heavily on flanks and breast, the latter being also washed with white, which gives the whole breast a grayish buff appearance. Size, largest of its species.

Adult female:—A little smaller than the male; rather darker, with smaller throat-patch, and white of tail restricted to the terminal portion of the feathers. The four central tail-feathers like those of the male; the rest heavily barred with black and buff. The wing-patch is also more restricted in size, is confined to the four outer primaries, and on the upper surface shows clear buff instead of white, since the latter color is limited to the inner web of remiges.

Immature plumage:—More fulvous all over and more heavily barred with black underneath. The black lines of crown are broader, and cover the head more extensively. White wing-patch of male mixed with buff; white on tail not so sharply defined, nor does it extend so near to base as in mature birds. The outer tail-feathers are barred and streaked with brown and buff. White throat-patch smaller and barred sparingly with

black and buff. In this immature stage the sexes are not easily determined aside from the difference in the white tail-patches; in the males the white on second feather from outside is never less than 2.5 inches long, while in the females the corresponding patch is about one inch in length.

Young, first plumage:—More pale buff on upper surface, the black markings smaller, browner and less velvety. Crown speckled with irregular diamond-shaped brown spots, each surrounded by light gray. Underparts dull pale buff. Wing-coverts, throat, breast, sides and flanks barred with black. Throat-patch indistinct. Sexes recognized by same markings as in full grown birds.

Young, downy stage:—Completely covered with the finest and softest of down, leaving nothing exposed but the feet and the tip of bill. Color on belly the palest of fawn; darker on sides, and running into deep fulvous on back, shoulders, chin, and sides of head through eye, and on the edges of both mandibles.

Since at least two years must elapse before the perfect plumage is attained, the bird necessarily undergoes various changes in special markings and general color: hence the necessity for being explicit in describing the various stages. The types are in full breeding plumage, having, with two young just from the egg, been taken at the most northern limit yet recorded.

Types:—No. 4122, ♂, my collection, taken by J. M. Priour, Nueces River, Nueces Co., Texas, March 22, 1887. Wing, 7.10; tail, 7; tarsus, 1.05. No. 4121, ♀, my collection, taken by same person at same place and time as above. Wing, 6.90; tail, 6.30; tarsus, 1.02.

Adult males (four specimens) average, wing, 7.10; tail, 7. Immature males (eight specimens) average, wing, 7; tail, 6.93. Adult females (two specimens) average, wing, 6.90; tail, 6.62. Immature females (three specimens) average, wing, 6.82; tail, 6.40.

Habitat. Southern Texas, and probably Northern Mexico.

This form, when compared with others of the species from Southern Mexico, Costa Rica, Panama, Guiana, and Brazil, can be distinguished, first by the prevailing gray color on upper parts, where the others have brown, rufous or cinnamon; second, by its large size, exceeding the large southern Brazilian form in length of wing and equalling it in length of tail; third, by the males having the outer tail-feather generally without white, and the white when it does occur being much restricted, while in more tropical and South American forms the rule is that males have much white on inner web of outer tail-feather. The birds of this genus I believe to be resident wherever found. I take pleasure in naming this race for my friend, Dr. J. C. Merrill, who first discovered the bird in the United States, on April 1, 1876 (see Bull. Nutt. Orn. Club, Vol. I, p. 88), and who aided me materially in my explorations on the Lower Rio Grande.

From material at my command it seems to me the species can be further divided by separating the large Southern Brazilian form from the one found on and near the equator. I hope to make this revision in the near future. Should my supposition prove correct the large Southern Brazilian bird should be called *Nyctidromus [albicollis] derbyanus* Gould (Icon. Av. II, 1838). Of this form I have had opportunity to examine the series of 27 specimens belonging to the American Museum of Natural History, collected by Mr Herbert H. Smith in the Province of Matto Grosso, Brazil. I have been aided greatly by all the material relating to this group in the possession of the National Museum, which was kindly loaned me by Mr. Ridgway.

***Parus carolinensis agilis*, subsp. nov. PLUMBEOUS
CHICKADEE.**

Top of head and throat black; wings and tail edged with white, as in *carolinensis*. Above pale plumbeous; below white with the slightest possible wash of buff on sides and flanks. Size, larger than *carolinensis*, and the tail longer, more nearly approaching the length of the wing.

Type, No. 3894, my collection, taken by J. M. Priour, Bee Co., Texas, Jan. 2, 1887. Wing, 2.45; tail, 2.40; culmen, .38.

The measurements of three other adults are as follows: No. 406, ♀, Collection of J. A. Loomis, Paint Rock, Texas, Feb. 21, 1887: wing, 2.42; tail, 2.52; culmen, .37. No. 4218, my collection, April, 1887: wing, 2.47; tail, 2.25; culmen, .37. No. 4219, ♂, my collection, April 15, 1887: wing, 2.40; tail, 2.25; culmen, .40. I have also two full grown and two half grown young, taken in April, which resemble adults.

This new Chickadee can be distinguished from its nearest ally, *P. carolinensis*, by its whiter underparts; by its being almost entirely free from buff washings on sides, and from olive and brown washings on upper parts; and its very pale lead color on back.

Habitat. Texas (Bee, Victoria, and Concho Counties).

I have difficulty in finding a name that will apply to any of the bird's special characteristics which has not already been used for some species of this genus. The common name, however, will distinguish it from other forms of *Parus*.

DESCRIPTION OF A SUPPOSED NEW FORM OF
MARGAROPS FROM DOMINICA.

BY CHARLES B. CORY.

Margarops montanus rufus, subsp. nov.

SUBSP. CHAR. (Type, No. 12,001 Coll. C. B. Cory.) Apparently larger than *M. montanus*, and distinctly reddish brown instead of dark brown; otherwise similar to *M. montanus*, of which it is apparently a light colored northern form.

Length (skin), 8.70; wing, 4.75; tail, 4; tarsus, .90; bill, .65.

Habitat. Dominica, West Indies.

AN APPARENTLY NEW *ELAINEA* FROM BAR-
BADOES, WEST INDIES.

BY CHARLES B. CORY.

Elainea barbadensis sp. nov.

SP. CHAR. (♂ *ad.* Type, No. 12,018, Coll. C. B. Cory.) Upper parts dark olive, with basal portion of the feathers on the crown white; outer webs of quills edged with dull brownish white; tail-feathers olive brown, edged with olive green on the outer webs; sides of the head and cheeks dark olive; throat gray; breast and underparts olive gray, faintly tinged with yellow.

Length, 6.65; wing, 3.55; tail, 3.30; tarsus, .95; bill, .45.

Habitat. Barbadoes, West Indies.

This form is apparently larger than *E. martinica*, and darker; the underparts are nearly uniform in color.

THE BIRDS OF THE WEST INDIES, INCLUDING
THE BAHAMA ISLANDS, THE GREATER AND
THE LESSER ANTILLES, EXCEPTING
THE ISLANDS OF TOBAGO
AND TRINIDAD.

BY CHARLES B. CORY.

[Continued from Vol. IV, p. 328.]

GENUS **Nycticorax** STEPH.

Nycticorax STEPHENS, Gen. Zool. XI, p. 608, 1819.

Nycticorax violaceus (LINN.).

Ardea violacea LINN. Syst. Nat. I, p. 238 (1766); SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 589 (St. Bartholomew); *ib.* p. 603 (Porto Rico).

Nycticorax violacea D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 213 (1840).

Nycticorax violaceus BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 120 (1859) (Bahamas); *ib.* BREWER, p. 308 (1860) (Cuba).—SCL. P. Z. S. 1861, pp. 70, 81 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).—SCL. P. Z. S. 1871, p. 273 (Santa Lucia).—A. & E. NEWTON, Handb. Jamaica, p. 111 (1881).—CORY, Auk, III, p. 502 (1886) (Grand Cayman).

Nyctherodius violaceus A. & E. NEWTON, Ibis, 1859, p. 262 (St. Croix).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 379 (St. Thomas); *ib.* MARCH, 1864, p. 65 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 351 (1866).—LAWR. Ann. Lyc. N. Y. VIII, p. 98 (1867) (Sombrero).—GUNDL. J. f. O. 1875, p. 311 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 363 (1878) (Porto Rico).—WELLS, List Bds. Grenada, p. 9 (1886).

Nyctiardea violacea LAWR. Pr. U. S. Nat. Mus. I, p. 275 (1878) (Grenada); *ib.* p. 460 (Guadeloupe).—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—CORY, Bds. Bahama I. p. 173 (1880); *ib.* List Bds. W. I. p. 28 (1885).

Common in many portions of the West Indies. It has been recorded from the Bahamas, Cuba, Jamaica, Porto Rico, Grenada, Guadeloupe, Santa Lucia, St. Thomas, St. Bartholomew, Sombrero, St. Croix, and Grand Cayman.

Nycticorax nycticorax nævius (BODD.).

Ardea nævia BODD. Tabl. Pl. Enl. 1783, p. 56.

Nycticorax vulgaris D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 208 (1840).

Nycticorax americanus GOSSE, Bds. Jam. p. 344 (1847). — ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).

Nycticorax gardeni BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba). — GUNDL. J. f. O. 1862, p. 83 (Cuba). — A. & E. NEWTON, Handb. Jamaica, p. 111 (1881).

Nyctiardea gardeni MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 65 (Jamaica). — GUNDL. Repert. Fisico-Nat. Cuba, I, p. 350 (1866); *ib.* J. f. O. 1875, p. 310 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 362 (1878) (Porto Rico).

Ardea nycticorax SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 602 (Porto Rico).

Nyctiardea grisea nævia CORY, List Bds. W. I. p. 28 (1885).

Nycticorax nycticorax nævius ZELEDON, Pr. U. S. Nat. Mus. VIII, p. 113 (1885).

Recorded from Greater Antilles.

GENUS Botaurus STEPH.

Botaurus STEPHENS, Shaw's Gen. Zool. XI, p. 592, 1819.

Botaurus lentiginosus (MONT.).

Ardea lentiginosa MONT. Orn. Dict. Suppl. 1813. — LEMB. Aves Cuba, p. 82 (1850).

Botaurus minor GOSSE, Bds. Jam. p. 346 (1847). — ALBRECHT, J. f. O. 1862, p. 206 (Jamaica). — GUNDL. J. f. O. 1862, p. 83 (Cuba).

Botaurus lentiginosus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba). — MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 65 (Jamaica). — GUNDL. Repert. Fisico-Nat. Cuba, I, p. 350 (1866); *ib.* J. f. O. 1874, p. 313 (Porto Rico); *ib.* 1875, p. 309 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 361 (1878) (Porto Rico). — A. & E. NEWTON, Handb. Jamaica, p. 111 (1881). — CORY, List Bds. W. I. p. 28 (1885).

Accidental in Cuba, Jamaica, and Porto Rico.

GENUS Ardetta GRAY.

Ardetta GRAY, List of Gen. App. p. 13, 1842.

***Ardetta exilis* (GMEL.).**

Ardea exilis GMEL. Syst. Nat. I, p. 648 (1788).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 205 (1840).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 257 (1866) (Porto Rico).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 602 (Porto Rico).

Ardeola exilis GOSSE, Bds. Jam. p. 343 (1847).

Ardetta exilis BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—SCL. P. Z. S. 1861, p. 81 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 64 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 350 (1866); *ib.* J. f. O. 1875, p. 308 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 360 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 174 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 111 (1881).—CORY, List Bds. W. I. p. 28 (1885).

Recorded from the Bahamas, Cuba, Jamaica, and Porto Rico.

FAMILY GRUIDÆ.

GENUS *Grus* LINN.

Grus LINNÆUS, Syst. Nat. 1735.

***Grus mexicana* MÜLL.**

Grus mexicana MÜLL. Syst. Nat. Suppl. p. 110 (1776).—CORY, List Bds. W. I. p. 29 (1885).

Grus poliophæa LEMB. Aves Cuba. p. 80 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Grus canadensis GUNDL. J. f. O. 1856, p. 339 (Cuba); *ib.* 1862, p. 81 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba)?—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 347 (1866); *ib.* J. f. O. 1875, p. 293 (Cuba).

Accidental in Cuba.

FAMILY ARAMIDÆ.

GENUS *Aramus* VIEILL.

Aramus VIEILLOT, Analyse, 1816.

***Aramus giganteus* (BONAP.).**

Rallus giganteus Bp. Journ. Acad. Nat. Sci. Phila. V, p. 31 (1825).

Aramus guarana D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 256 (1840).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

- Aramus scolopaceus* GOSSE, Bds. Jam. p. 355 (1847).—SALLÉ, P. Z. S. 1857, p. 236 (San Domingo).
Aramus giganteus SCL. P. Z. S. 1861, p. 81 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 360 (1866).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 257 (1866) (Porto Rico); *ib.* XI, p. 97 (1867) (San Domingo).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 601 (Porto Rico).—GUNDL. J. f. O. 1875, p. 353 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 387 (1878) (Porto Rico).—A. & E. NEWTON, Handb. Jamaica, p. 115 (1881).—CORY, List Bds. W. I. p. 29 (1885).
Nothrodinus scolopaceus GUNDL. J. f. O. 1862, p. 89 (Cuba).
Aramus scolopaceus giganteus CORY, Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti).
Aramus pictus CORY, Bds. Haiti and San Domingo, p. 157 (1885).

Common in the Greater Antilles.

FAMILY JACANIDÆ

GENUS *Jacana* BRISS.

Jacana BRISSON, Orn. V, p. 121 (1760).

Jacana violacea (CORY).

- Parra jacana* D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 249 (1840).—GUNDL. J. f. O. 1856, p. 425 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. J. f. O. 1862, p. 89 (Cuba); *ib.* Repert. Fisico-Nat. Cuba, I, p. 360 (1866); *ib.* J. f. O. 1875, p. 338 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 385 (1878) (Porto Rico)?
Parra violacea CORY, Bull. Nutt. Orn. Club, VI, pp. 130, 155 (1881) (Haiti); *ib.* List Bds. W. I. p. 29 (1885).
Parra gymnostoma CORY, Bds. Haiti & San Domingo, p. 159 (1885).

SP. CHAR. *Male*:—Bill and comb pale orange; bare skin at the base of the lower mandible pale bluish white; head, neck, and upper breast dark lustrous green; back and wing-coverts purple, shading into rich golden brown near the rump; rump and tail-coverts purple; underparts dark purple, showing a tinge of dark rufous on the crissum; most of the primaries and secondaries bright yellow, edged with brown; tail rufous brown; carpal spur pale orange; legs and feet dull olive; iris brown.

Length, 9; wing, 5.50; tail, 2.25; tarsus, 2.25; bill, 1.40

HABITAT. Cuba, Haiti, and San Domingo.

Since the publication of the 'Birds of Haiti and San Domingo,' I have examined several specimens of *Jacana* from Cuba, and they agree exactly with the San Domingo bird, but all are considerably larger and brighter than specimens of *J. gymnostoma*; the coloration of the wattles is, I believe, also different. I have, therefore, restored the West Indian bird to the rank of a species pending further investigation.

FAMILY RALLIDÆ.

GENUS *Rallus* LINN.

Rallus LINNÆUS, Syst. Nat. I, p. 261, 1766.

Rallus maculatus BODD.

Rallus maculatus BODD. ex Buff. Pl. Enl. p. 775 (1783). — SCHLEG. Mus. Pays-Bas, Ralli, p. 13 (1865). — SCL. & SAL. P. Z. S. 1868, p. 444; *ib.* Nom. Avium Neotr. p. 139 (1873). — CORY, List Bds. W. I. p. 29, (1885).

Rallus variegatus GMEL. Syst. Nat. I, p. 718 (1788). — BURM. Syst. Ueb. III, p. 382. — D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 261 (1840). — BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).

Aramides maculatus HARTL. Ind. Az. p. 23. — GRAY. Gen. Bds. p. 594 (1844-49).

Pardirallus variegatus BP. Compt. Rend. XLIII, p. 599. — GRAY, Handl. Bds. III, p. 56 (1871).

Limnopardalus variegatus GUNDL. J. f. O. 1856, p. 428; *ib.* Repert. Fisico-Nat. Cuba, I, p. 361 (1866); *ib.* J. f. O. 1875, p. 357.

SP. CHAR. — General plumage dull black; feathers on the back heavily marked with brown; whole body heavily blotched and mottled with white; rump brown; thighs smoky brown, marked with white above; chin nearly white; legs (in skin) pale yellow; bill green; a spot of scarlet on the base of the lower mandible.

Length (skin), 12; wing, 4.75; tail, 3; tarsus, 1.50; bill, 1.95.

Recorded from Cuba.

Rallus elegans AUD.

Rallus elegans AUD. Orn. Biog. III, p. 27 (1835). — GUNDL. J. f. O. 1856, p. 427 (Cuba). — BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba). — GUNDL. Repert. Fisico-Nat. Cuba, I, p. 360 (1866); *ib.* J. f. O. 1875, p. 355 (Cuba). — CORY, List Bds. W. I. p. 29 (1885).

Accidental in Cuba.

***Rallus virginianus* LINN.**

Rallus virginianus LINN. Syst. Nat. I, p. 263 (1766).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 361 (1866); *ib.* J. f. O. 1875, p. 357 (Cuba).—CORY, List Bds. W. I. p. 29 (1885).
Accidental in Cuba.

***Rallus longirostris crepitans* (GMEL.).**

Rallus crepitans GMEL. Syst. Nat. I, p. 713 (1788).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).
Rallus longirostris CORY, Bds. Bahama I. p. 176 (1880).
Rallus longirostris crepitans RIDGW. Bull. Nutt. Orn. Club, V, p. 140 (1880).—CORY, List Bds. W. I. p. 29 (1885).
Bahamas in winter.

***Rallus longirostris caribæus* RIDGW.**

Rallus longirostris D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 260 (1840).—GOSSE, Bds. Jam. p. 364 (1847).—A. & E. NEWTON, Ibis, 1859, p. 260.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 378.—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).
Rallus crepitans BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).—SCL. P. Z. S. 1861, p. 81.—ALBRECHT, J. f. O. 1862, p. 206.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 361 (1866); *ib.* J. f. O. 1875, p. 356; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 388 (1878).—LAWR. Pr. U. S. Nat. Mus. I, pp. 461, 487 (1878).
“*Rallus elegans* MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69”?
Rallus longirostris var. *caribæus* RIDGW. Bull. Nutt. Orn. Club, V, p. 140 (1880).—BD. BWR. & RIDGW. Hist. N. Am. W. Bds. I, p. 359 (1884).
Rallus longirostris caribæus CORY, List Bds. W. I. p. 29 (1885).

This form is very closely allied to the North American bird; the principal difference being that those from the West Indies usually show olivaceous striping on the back, more or less distinct.

HABITAT. Antilles.

***Rallus coryi* MAYNARD.**

Rallus coryi MAYNARD, American Exchange and Mart, Boston, Jan. 15 (1887); *ib.* Feb. 5 (1887).

SP. CHAR. — “Above pale yellowish brown, streaked with pale ashy; wings light reddish, becoming paler on the outer edges; beneath pale

ashy tinged with reddish across the breast, becoming white on the throat and abdomen, banded faintly on sides and flanks with white and pale ashy." (Maynard, orig. descr., l. c.)

Length, 11.50; wing, 6; tail, 2.10; tarsus, 1.75; bill, 2.15.

HABITAT. Andros Island, Bahamas.

GENUS *Porzana* VIEILL.

Porzana VIEILLOT, Analyse, p. 61, 1816.

Porzana concolor (GOSSE).

Rallus concolor GOSSE, Bds. Jam. p. 369 (1847).—ALBRECHT, J. f. O. 1862, p. 206.—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69.

Corethrura cayennensis MOORE, P. Z. S. 1859, p. 64.—SCL. & SALV. Ibis, 1859, p. 230.

Corethrura gualemalensis LAW. Pr. Acad. Nat. Sci. Phila. 1863, p. 106.

Rallina castanea SCHLEG. Mus. Pays-Bas, Ralli, p. 17 (1865).

Porzana concolor SCL. & SALV. P. Z. S. 1868, p. 452; *ib.* Nom. Avium Neotr. p. 140 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).—CORY, List Bds. W. I. p. 30 (1885).

Rufirallus concolor GRAY, Handl. Bds. III, p. 61 (1871).

SP. CHAR. *Male*.—Head dark olive, showing a tinge of rufous on the forehead; back olive, shading into rufous brown on the wing-coverts; sides of the head pale reddish brown, brightest on the cheeks; chin white, shading into clear reddish brown on the lower throat and breast, rest of underparts reddish brown; under surface of wings dull slate color.

The sexes are similar.

Length (skin), 9.25; wing, 5.25; tarsus, 1.75; bill, 1.10.

HABITAT. Jamaica.

Porzana flaviventris (BODD.).

Rallus flaviventer "BODD. Pl. Enl. (1783)."

Rallus minutus GMEL. Syst. Nat. I, p. 719 (1788).—LEMB. Aves Cuba, p. 109 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).

Ortygometra minuta BURM. Syst. Ueb. III, p. 388.—GOSSE, Bds. Jam. p. 372 (1847).

Rallus superciliaris VIEILL. Nouv. Dict. XXVIII, p. 565.

Ortygometra flaviventris GRAY, Gen. Bds. III, p. 593 (1844-49).—HARTL. Ind. Az. p. 24.

Laterallus gossei BP. Compt. Rend. XLIII, p. 599 (1856).

Erythra minuta BP. Compt. Rend. XLIII, p. 600 (1856).

Crybastes gossii CAB. J. f. O. 1856, p. 428.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 361 (1866); *ib.*, J. f. O. 1875, p. 358.

Crex minuta SCL. P. Z. S. 1861, p. 81.

Porzana minuta MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69.

Porzana flaviventer SCHLEG. Mus. Pays-Bas, I, p. 31 (1865).—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).

Porzana flaviventris SCL. & SALV. P. Z. S. 1868, p. 455; *ib.* Nom. Avium Neotr. p. 140 (1873).—CORY, List Bds. W. I. p. 30 (1885).

Crybastus minutus GRAY, Handl. Bds. III, p. 61 (1871).

SP. CHAR.—Top of head and a line through the eye, from the bill, dark brown, darkest on the crown, and shading into light brown on the back of the neck; middle back dark brown and black, streaked with white; rump and upper tail-coverts chestnut brown, sometimes touched with white; tail-feathers black, edged with brown, and dotted with white; wing-coverts light cinnamon-brown; scapularies marked with black and white; quills pale brown; outer web of first primaries dull white; underparts white; throat white, tinged with very pale yellowish brown; flanks barred with white and black; bill dark.

Length (skin), 5.75; wing, 2.75; tail, 1.15; tarsus, .85; bill, .60.

HABITAT. Cuba and Jamaica.

Porzana jamaicensis (GMEL.).

Rallus jamaicensis GMEL. Syst. Nat. I, p. 718 (1788).

Ortygometra jamaicensis GOSSE, Bds. Jam. p. 375 (1847).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Creciscus jamaicensis GUNDL. J. f. O. 1856, p. 428 (Cuba); *ib.* 1875, p. 360 (Cuba); *ib.* 1881, p. 401 (Cuba).

Porzana jamaicensis SCL. P. Z. S. 1861, p. 81 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).—CORY, List Bds. W. I. p. 30 (1885).

Recorded from Cuba and Jamaica.

Porzana carolina (LINN.).

Rallus carolinus LINN. Syst. Nat. I, p. 363 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 262 (1840).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 257 (1866) (Porto Rico).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 587 (St. Bartholomew); *ib.* p. 601 (Porto Rico).

Ortygometra carolina GOSSE, Bds. Jam. p. 371 (1847).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Porzana carolina GUNDL. J. f. O. 1856, p. 428 (Cuba).—A. & E. NEWTON, Ibis, 1859, p. 260 (St. Croix).—SCL. P. Z. S. 1861, p. 81 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 361 (1866).—BRACE, Pr. Bost. Soc. Nat. Hist. XIX, p. 241 (1877) (Bahamas).—GUNDL. J. f. O. 1875, p. 358 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 390 (1878) (Porto

Rico).—CORY, Bds. Bahama I. p. 176 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).—CORY, List Bds. W. I. p. 30 (1885).—WELLS, List Bds. Grenada, p. 9 (1886).

This species is found throughout the West Indies; numerous references from the Bahamas and Antilles.

Porzana noveboracensis (GMEL.).

Fulica noveboracensis GMEL. Syst. Nat. I, p. 701 (1788).

Porzana noveboracensis BD. BWR. & RIDGW. Hist. N. Am. W. Bds. I, p. 375 (1884) (Cuba).—CORY, List Bds. W. I. p. 30 (1885).

Accidental in Cuba.

GENUS Gallinula BRISS.

Gallinula BRISSON, Orn. VI, p. 3, 1760.

Gallinula galeata (LICHT.).

Crex galeata LICHT. Verz. Doubl. p. 826 (1823).

Gallinula chloropus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 268 (1840).

Gallinula galeata GOSSE, Bds. Jam. p. 381 (1847).—SALLÉ, P. Z. S. 1857, p. 237 (San Domingo).—A. & E. NEWTON, Ibis, 1859, p. 260 (St. Croix).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* BREWER, p. 307 (1860) (Cuba).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 378 (St. Thomas).—SCL. P. Z. S. 1861, p. 81 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 257 (1866) (Porto Rico).—SUNDEV, Oefv. K. Vet. Akad. For. 1869, p. 601 (Porto Rico).—GUNDL. J. f. O. 1875, p. 360 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 391 (1878) (Porto Rico).—LAWR. Pr. U. S. Nat. Mus. I, p. 276 (1878) (Grenada); *ib.* p. 461 (Guadeloupe).—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—CORY, Bds. Bahama I. p. 177 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 115 (1881).—CORY, Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 161 (1885); *ib.* List Bds. W. I. p. 30 (1885).—WELLS, List Bds. Grenada, p. 9 (1886).—CORY, Auk, III, p. 502 (1886) (Grand Cayman); *ib.* Ibis, 1886, p. 474 (Marie Galante).

Gallinula galeata GUNDL. Repert. Fisico-Nat. Cuba, I, p. 362 (1866).

Common in the Bahamas and Antilles.

GENUS Ionornis REICH.

Ionornis REICHENBACH, Syst. Av. p. 21, 1853.

Ionornis martinica (LINN.).

Fulca martinica LINN. Syst. Nat. I, p. 259 (1766).

Porphyrio martinica D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 265 (1840).—GOSSE, Bds. Jam. p. 377 (1847).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—CORY, Bds. Bahama I. p. 178 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti).

Gallinula martinica BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* X, p. 257 (1866) (Porto Rico).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—SUNDEV, Oefv. K. Vet. Akad. For. 1869, p. 601 (Porto Rico).

Porphyrio martinicus SCL. P. Z. S. 1861, p. 81 (Jamaica); *ib.* 1872, p. 653 (Santa Lucia).—LAWR. Pr. U. S. Nat. Mus. I, p. 197 (1878) (St. Vincent); *ib.* p. 487 (Dominica).—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—A. & E. NEWTON, Handb. Jamaica, p. 115 (1881).

Porphyria martinica GUNDL. Repert. Fisico-Nat. Cuba, I, p. 362 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 361 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 392 (1878) (Porto Rico).

Ionornis martinica CORY, Bds. Haiti & San Domingo, p. 162 (1885); *ib.* List Bds. W. I. p. 30 (1885).—WELLS, List Bds. Grenada, p. 9 (1886).

Common in the Bahamas and Antilles.

GENUS *Fulca* LINN.

Fulca LINNÆUS, Syst. Nat. 1735; *ib.* I, p. 152, 1758.

***Fulca americana* GMEL.**

Fulca americana GMEL. Syst. Nat. I, p. 704 (1788).—GOSSE, Bds. Jam. p. 384 (1847).—A. & E. NEWTON, Ibis, 1859, p. 260 (St. Croix)?—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* BREWER, p. 307 (1860) (Cuba).—SCL. P. Z. S. 1861, p. 81 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 363 (1866).—SUNDEV, Oefv. K. Vet. Akad. For. 1869, p. 587 (St. Bartholomew); *ib.* p. 601 (Porto Rico).—GUNDL. J. f. O. 1875, p. 363 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 394 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 178 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 115 (1881).—CORY, Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 163 (1885); *ib.* List Bds. W. I. p. 30 (1885).—WELLS, List Bds. Grenada, p. 9 (1886).

Fulca atra D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 211 (1840).

Common in the Bahamas and Antilles.

Fulica caribæa RIDGW.

Fulica caribæa RIDGW. Pr. U. S. Nat. Mus. VII, p. 358 (1884). — CORY, List Bds. W. I. p. 30 (1885).

"SP. CHAR.—Similar to *F. americana*, but differing in the slenderer bill and in the form and color of the frontal shield. Frontal shield oval or elliptical, much wrinkled, .70-.90 inch long, and .35-.50 wide, in the breeding season; its color, pale brownish (whitish in life?) instead of chestnut or liver brown, as in *F. americana*." (Ridgw. l. c. orig. descr.).

HABITAT. Guadeloupe and St. John.

FAMILY ANATIDÆ.

GENUS *Anser* BRISS.

Anser BRISSON, Orn. 1760.

Anser albifrons gambeli.

Anser albifrons LEMB. Aves Cuba, p. 112 (1850).—CORY, List Bds. W. I. p. 30 (1885).

Anser gambeli HARTL. Rev. Mag. Zool. 1852, p. 7.—CAB. J. f. O. 1857, p. 226 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Anser gambelii GUNDL. Repert. Fisico-Nat. Cuba, I. p. 387 (1866); *ib.* J. f. O. 1875, p. 375 (Cuba).—CORY, List Bds. W. I. p. 30 (1885).

Accidental in Cuba in winter.

GENUS *Chen* BOIE.

Chen BOIE, Isis, 1822, p. 563.

Chen hyperborea (PALL.).

Anser hyperboreus PALL. Spic. Zool. VI, pp. 80, 25 (1769).—LEMB. Aves Cuba, p. 111 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 70 (Jamaica).—CORY, Bds. Bahama I. p. 182 (1880).

Chen hyperboreus GOSSE, Bds. Jam. p. 408 (1847).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 387 (1866); *ib.* J. f. O. 1875, p. 371 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 399 (1878) (Porto Rico).—A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, List Bds. W. I. p. 30 (1885).

Accidental in Bahamas, Cuba, Jamaica and Porto Rico.

Chen caerulescens (LINN.).

Anas caerulescens LINN. Syst. Nat. I, 10th ed. p. 124 (1758); *ib.* 12th ed. p. 198 (1766).

Chen caerulescens GUNDL. Repert. Fisico-Nat. Cuba, I, p. 387 (1866); *ib.* J. f. O. 1875, p. 374 (Cuba).—CORY, List. Bds. W. I. p. 30 (1885).

Anser caerulescens BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 70 (1867) (Bahamas).

Recorded from the Bahamas and Cuba. Possibly not separable from the preceding species, of which it may prove to be a race.

GENUS Branta SCOPOLI.

Branta SCOPOLI, Ann. i Hist. Nat. p. 67, 1769.

Branta canadensis (LINN.).

Anas canadensis LINN. Syst. Nat. I, p. 198 (1766).

Branta canadensis BANNISTER, Pr. Acad. Nat. Sci. Phila. 1870, p. 131.

Bernicla canadensis A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, Revised List Bds. W. I. p. 30 (1886).

Recorded from Jamaica.

GENUS Dendrocygna SWAINS.

Dendrocygna SWAINSON, Classif. Birds, II, p. 365, 1837.

Dendrocygna arborea (LINN.).

Anas arborea LINN. Syst. Nat. I, p. 207 (1766).—GMEL. Syst. Nat. I, p. 540 (1788).—VIEILL. Enc. Méth. p. 141 (1823).—D'ORB. in La Sagra's Hist. Nat. Cuba, I, p. 291 (1840).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 603.

Anas jacquini GMEL. Syst. Nat. I, p. 536 (1788).

Dendrocygna arborea EYTON, Mon. Anat. p. 110 (1838).—GOSSE, Bds. Jam. p. 395 (1847).—CAB. J. f. O. 1857, p. 227.—A. & E. NEWTON, Ibis, 1859, p. 366.—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859); *ib.* XI, p. 70 (1866).—ALBRECHT, J. f. O. 1862, p. 206.—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 70.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 387 (1866); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 400 (1878).—SCL. & SALV. P. Z. S. 1876, p. 375.—CORY, Bds. Bahama I. p. 183 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, Bds. Haiti & San Domingo, p. 166 (1885); *ib.* List Bds. W. I. p. 30 (1885).—BD. BWR. & RIDGW. Hist. N. Am. W. Bds. I, p. 480 (1884).

Dendrocygnus arborea BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).

Dendrocygna autumnalis? TAYLOR, Ibis, 1864, p. 172.

SP. CHAR. *Male*:—Head with black band on the crown, continuing in narrow stripes to the nape; forehead and over the eye reddish brown, shading into dull white on the throat, and mottled brown and white on the sides of the head and neck; breast and upper parts brown, the feathers broadly edged with tawny; rump and tail black; underparts brownish white, heavily spotted and banded upon the sides, the spots becoming very small and faint upon the abdomen; most of the primaries slate-color, becoming brownish at the tips; legs and bill black.

Length, 21.00; wing, 11.25; tarsus, 2.60; bill 2.00.

HABITAT. Bahamas and Antilles.

Dendrocygna autumnalis (LINN.).

Anas autumnalis LINN. Syst. Nat. I, p. 205 (1766).

Dendrocygna autumnalis GOSSE, Bds. Jam. p. 398 (1847).—ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 70 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, List Bds. W. I. p. 30 (1885).

Accidental in Jamaica.

Dendrocygna viduata (LINN.).

Anas viduata LINN. Syst. Nat. I, p. 205 (1766).—GMEL. Syst. Nat. I, p. 536 (1788).—VIEILL. Enc. Méth. p. 132 (1823).

Dendrocygna viduata EYTON, Mon. Anat. p. 110 (1838).—ALBRECHT, J. f. O. 1861, p. 214.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 388 (1866); *ib.* J. f. O. 1875, p. 377.—SCL. & SALV. P. Z. S. 1876, p. 376.—ED. BWR. & RIDGW. Hist. N. Am. W. Bds. I, p. 481 (1884).—CORY, List Bds. W. I. p. 30 (1885).

Dendrocygnus viduata BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).

SP. CHAR. *Male*:—Entire front of head, including eye, cheeks and chin, white, tinged with brown; a patch of white on the middle of the throat, connecting with the white upper throat and chin by a narrow white line; rest of head and neck black; breast and upper back rufous brown; sides of the body thickly banded with narrow black and white lines; centre of the belly and lower breast black; feathers on the back edged with tawny; wings black; carpus and shoulder chestnut brown; wing-coverts showing an olive tinge; bill black; feet black.

The sexes are similar.

Length, 19.00; wing, 9.00; tail, 4.00; tarsus, 2.00; bill, 2.00.

Given by authors as occurring in Cuba; by some, claimed to have been introduced.

GENUS *Anas* LINN.

Anas LINNÆUS, Syst. Nat. I, 10th ed. p. 122, 1758; *ib.* 12th ed. p. 194, 1766.

Anas strepera LINN.

Anas strepera LINN. Syst. Nat. I, 10th ed. p. 125 (1758); *ib.* 12th ed. p. 200 (1766).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).

Chaulelasmus streperus GOSSE, Bds. Jam. p. 408 (1847).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 389 (1866); *ib.* J. f. O. 1875, p. 381 (Cuba).

Anas streperus CORY, List Bds. W. I. p. 30 (1885).

Cuba and Jamaica in winter.

Anas boschas LINN.

Anas boschas LINN. Syst. Nat. I, p. 205 (1766).—GOSSE, Bds. Jam. p. 408 (1847).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* BREWER, p. 308 (1860) (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 388 (1866); *ib.* J. f. O. 1875, p. 378 (Cuba).—CORY, Bds. Bahama I. p. 184 (1880); *ib.* List Bds. W. I. p. 30 (1885).—WELLS, List Bds. Grenada, p. 10 (1886).

Anas boschas A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).

Accidental in Cuba, the Bahamas, Jamaica, and Grenada.

Anas obscura GMEL.

Anas obscura GMEL. Syst. Nat. I, p. 541 (1788).—GOSSE, Bds. Jam. p. 408 (1847).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—BD. BWR. & RIDGW. Hist. N. Am. W. Bds. I, p. 499 (1884) (Cuba?).—CORY, Revised List Bds. W. I. p. 30 (1886).

Anas fulvigula? CORY, List Bds. W. I. p. 30 (1885).

Cuba? Jamaica.

It is uncertain whether the Dusky Duck which, it is claimed, occurs in Jamaica, is *Anas fulvigula* Ridgw. or this species. Both occur in Florida.

Anas maxima, described by Gosse (Bds. Jam. p. 399, 1847), is supposed to be a hybrid.

GENUS *Dafila* STEPH.

Dafila STEPHENS, Shaw's Gen. Zool. XII, p. 126, 1824.

Dafila bahamensis (LINN.).

- Anas bahamensis* LINN. Syst. Nat. I, p. 199 (1766).—GMEL. Syst. Nat. I, p. 516 (1788).—MAX. Beitr. p. 925 (1831).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 591.
- Anas rubirostris* VIEILL. Nouv. Dict. V, p. 108 (1816).
- Anas ilathera* VIEILL. Enc. Méth. p. 152 (1823).
- Anas urophasianus* VIG. Zool. Journ. IV, p. 357 (1829).
- Phasianurus vigorsii* WAGL. Isis, 1832, p. 1235.
- Anas fimbriata* MERREM, Ersch u. Gruber's Ency. sect. 1, XXXV, p. 35.
- Dafila urophasianus* EYTON, Mon. Anat. p. 112 (1838).
- Peocilonetta bahamensis* EYTON, Mon. Anat. p. 116 (1838).—GOSSE, Bds. Jam. p. 408 (1847).—SCL. P. Z. S. 1860, p. 389.—ABBOTT, Ibis, 1861, p. 160.—ALBRECHT, J. f. O. 1862, p. 207.—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71.—GUNDL. J. f. O. 1874, p. 314; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 403 (1878); *ib.* J. f. O. 1881, p. 400.
- Dafila bahamensis* HARTL. Ind. Az. p. 27 (1847).—CAB. in Schomb. Guian. III, p. 763 (1848).—SCL. & SALV. P. Z. S. 1876, p. 393.—LAWR. Pr. U. S. Nat. Mus. I, p. 487 (1878).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, Bds. Bahama I. p. 185 (1880); *ib.* Bds. Haiti & San Domingo, p. 167 (1885); *ib.* List Bds. W. I. p. 31 (1885).

SP. CHAR. *Male*:—General plumage tawny, mottled and streaked with brown; wings banded with lustrous green, black and tawny, in the order given; top of head and nape brown, finely mottled with dark brown; rest of head and throat white; a triangular patch on each side of the upper mandible lake red; tail tawny, becoming pale at the tip; legs black.

Length, 19.00; wing, 8.00; tail, 4.75; tarsus, 1.25; bill, 1.95.

HABITAT. Bahamas and Antilles.

Dafila acuta (LINN.).

- Anas acuta* LINN. Syst. Nat. I, p. 202 (1766).—LEMB. Aves Cuba, p. 113 (1850).
- Dafila acuta* GOSSE, Bds. Jam. p. 408 (1847).—CAB. J. f. O. 1857, p. 227 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 388 (1860); *ib.* J. f. O. 1875, p. 378 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 402 (1878) (Porto Rico).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Recorded from Cuba, Jamaica, and Porto Rico.

GENUS *Mareca* STEPH.

Mareca STEPHENS, Shaw's Gen. Zool. XII, pt. II, p. 130, 1824.

Mareca americana (GMEL.).

Anas americana GMEL. Syst. Nat. II, p. 526 (1788).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 293 (1840).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 603 (Porto Rico).

Mareca americana GOSSE. Bds. Jam. p. 408 (1847).—CAB. J. f. O. 1857, p. 227 (Cuba).—BREWER. Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—NEWTON, Ibis, 1860, p. 308 (St. Thomas).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 388 (1866); *ib.* J. f. O. 1875, p. 378 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 402 (1878) (Porto Rico).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Accidental in winter in the West Indies; records from Cuba, Jamaica, Porto Rico, and St. Thomas.

Cairina moschata is given by numerous writers from Cuba and Jamaica. It is claimed to have been introduced.

GENUS *Querquedula* STEPH.

Querquedula STEPHENS, Shaw's Gen. Zool. XII, p. 149, 1824.

Querquedula discors (LINN.).

Anas discors LINN. Syst. Nat. I, p. 205 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 294 (1840).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 591 (St. Bartholomew); *ib.* p. 603 (Porto Rico).

Cyanopterus discors GOSSE, Bds. Jam. p. 401 (1847).

Cyanopterus inornatus GOSSE, Bds. Jam. p. 402 (1847).—ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).

Querquedula discors SALLÉ, P. Z. S. 1857, p. 237 (San Domingo).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, b. 122 (1859) (Bahamas).—SCL. P. Z. S. 1861, p. 82 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 389 (1866).—LAWR. Ann. Lyc. N. Y. VIII, p. 101 (1867) (Sombrero).—GUNDL. J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 380 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 404 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 186 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, Bds. Haiti & San Domingo, p. 168 (1885).—CORY, List Bds. W. I. p. 31 (1885).—WELLS, List Bds. Grenada, p. 10 (1886).

Pterocyanca discors BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Querquedula inornata MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).

Anas (Querquedula) discors BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 97 (1867) (San Domingo).

Abundant throughout the Bahamas and Antilles.

Querquedula carolinensis (GMEL.).

Anas carolinensis GMEL. Syst. Nat. I, p. 533 (1788).—LEMB. Aves Cuba, p. 114 (1850).

Querquedula carolinensis GOSSE, Bds. Jam. p. 408 (1847).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. J. f. O. 1862, p. 92 (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—CORY, Bds. Bahama I. p. 187 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).—WELLS, List Bds. Grenada, p. 10 (1886).

Nettion carolinensis BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 389 (1866); *ib.* J. f. O. 1875, p. 381 (Cuba).

This species has been taken in winter in the Bahama Islands, Cuba, Jamaica, and Grenada.

Querquedula cyanoptera is given by Brewer as occurring in Cuba (Pr. Bost. Soc. Nat. Hist. VII, p. 308, 1860). If the species in question was correctly identified, it is of rare occurrence in the West Indies.

Nyroca ferruginea is given by W. T. March, as occurring in Jamaica (Pr. Acad. Nat. Sci. Phila. 1864, p. 72). This record is undoubtedly incorrect. The bird in question was probably some other species wrongly identified, possibly *Querquedula cyanoptera*.

GENUS *Spatula* BOIE.

Spatula BOIE. Isis, 1822, p. 564.

Spatula clypeata (LINN.).

Anas clypeata LINN. Syst. Nat. I, 10th ed. p. 124 (1758); *ib.* 12th ed. p. 200 (1766).—LEMB. Aves Cuba, p. 115 (1856).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 603 (Porto Rico).

Anas mexicana D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 299 (1840).

Rhyncaspis clypeata GOSSE, Bds. Jam. p. 408 (1847).

Rhyncaspis clypeata BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Spatula clypeata NEWTON, Ibis, 1860, p. 308 (St. Thomas).—SCL. P. Z. S. 1861, p. 82 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 389 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 379 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 404 (1878) (Porto Rico).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Querquedula clypeata ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).

West Indies in winter; records from Cuba, Jamaica, Porto Rico, and St. Thomas.

GENUS *Aix* BOIE.

Aix BOIE, ISIS, 1828, p. 329.

Aix sponsa (LINN.).

Anas sponsa LINN. Syst. Nat. I, p. 207 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 288 (1840).

Aix sponsa GOSSE, Bds. Jam. p. 408 (1847).—CAB. J. f. O. 1857, p. 226 (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 389 (1866); *ib.* J. f. O. 1875, p. 381 (Cuba).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Dendrocygnus sponsa BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Cuba and Jamaica in winter.

GENUS *Aythya* BOIE.

Aythya BOIE, ISIS, 1822, p. 564.

Aythya affinis (EYTON).

Fuligula affinis EYTON, Mon. Anat. p. 157 (1838).—GOSSE, Bds. Jam. p. 408 (1847).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).—CORY, Bds. Bahama I. p. 187 (1880); *ib.* List Bds. W. I. p. 31 (1885).

Anas marila D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 295 (1840) (?)

Fulix affinis A. & E. NEWTON, Ibis, 1859, p. 366 (St. Croix) (?)—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 382 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 405 (1878) (Porto Rico).

Fuligula marila BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Fuligula mariloides GUNDL. J. f. O. 1862, p. 92 (Cuba).

Nyroca affinis A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).

Recorded from Porto Rico, Cuba, Bahamas, Jamaica, and St. Croix.

Aythya collaris (DONOV.).

Anas collaris DONOV. Brit. Birds, VI, pl. 47 (1809).

Fuligula ruftorques GOSSE, Bds. Jam. p. 408 (1847).—LEMB. Aves Cuba, p. 117 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).

Fulix collaris BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1875, p. 383 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 406 (1878) (Porto Rico).

Anas (Fuligula) ruftorques GUNDL. J. f. O. 1871, p. 283 (Cuba).

Fuligula collaris CORY, Bds. Bahama I. p. 188 (1880); *ib.* List Bds. W. I. p. 31 (1885).

Nyroca collaris A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).

Bahamas, Cuba, Jamaica, and Porto Rico, in winter.

Aythya vallisneria (WILS.).

Anas vallisneria WILS. Am. Orn. VIII, p. 103 (1814).—CORY, List Bds. W. I. p. 30 (1885).

Nyroca vallisneria BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Aythya vallisneria MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica)

Aythya vallisneria GUNDL. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1875, p. 382 (Cuba).

Nyroca vallisneria A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).

Recorded from Cuba and Jamaica.

Aythya americana (EYTON).

Fuligula americana EYTON, Mon. Anat. p. 155 (1838).—GOSSE, Bds. Jam. p. 408 (1847).—CORY, List Bds. W. I. p. 31 (1885).

Aythya americana BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).

Fuligula ferina var. *americana* CORY, Bds. Bahama I. p. 189 (1880).

Nyroca americana A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).

A winter visitant; records from the Bahamas, Cuba, and Jamaica.

GENUS *Charitonetta* STEJN.

Charitonetta STEJNEGER, Orn. Expl. Kamtsch. p. 163, 1885.

Charitonetta albeola (LINN.).

Anas albeola LINN. Syst. Nat. I, p. 199 (1766).

Clangula albeola BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—CORY, List Bds. W. I. p. 31 (1885).

Bucephala albeola GUNDEL. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1875, p. 383 (Cuba).

Accidental in Cuba in winter.

GENUS *Glaucionetta* STEJN.

Glaucionetta STEJNEGER, Pr. U. S. Nat. Mus. VIII, p. 409, 1885.

Glaucionetta clangula americana (BONAP.).

Clangula americana BP. Comp. List, 1838, p. 58.

Clangula glaucion LAWR. Pr. U. S. Nat. Mus. I, p. 241 (1878) (Barbuda).

Clangula glaucion americana BD. BWR. & RIDGW. Hist. N. Am. W. Bds. II, p. 44 (1884) (Cuba) (?).

Clangula glaucium CORY, Revised List Bds. W. I. p. 31 (1886).

Recorded from Cuba and Barbuda.

GENUS *Ædemia* FLEMING.

Ædemia FLEMING, Philos. Zool. II, p. 260, 1822.

Ædemia perspicillata (LINN.).

Anas perspicillata LINN. Syst. Nat. I, p. 201 (1766).

Ædemia perspicillata GOSSE, Bds. Jam. p. 408 (1847).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Claimed to have occurred in Jamaica.

GENUS *Erismatura* BONAP.

Erismatura BONAPARTE, Saggio Distr. Met. p. 143, 1832.

Erismatura rubida (WILS.).

Anas rubida WILS. Am. Orn. VIII, pp. 128-130 (1814).

Erismatura spinosa GOSSE, Bds. Jam. p. 404 (1847).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).

Fuligula rubida LEMB. Aves Cuba, p. 118 (1850).

Erismatura rubida BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 384 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 407 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 189 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).—WELLS, List Bds. Grenada, p. 10 (1886).

Occurs in winter in the West Indies; records from Porto Rico, Cuba, Jamaica, Grenada, and the Bahamas.

GENUS *Nomonyx* RIDGW.

Nomonyx RIDGWAY, Pr. U. S. Nat. Mus. II, p. 15, March 27, 1880.

***Nomonyx dominicus* (LINN.).**

Anas dominica LINN. Syst. Nat. I, p. 201 (1766).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 603 (Porto Rico).

Anas spinosa? D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 297 (1840)?

Erismatura dominica A. & E. NEWTON, Ibis, 1859, p. 367 (St. Croix) (?).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 391 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 314 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 408 (1878) (Porto Rico).

Dendrocygnus spinosa BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Nomonyx dominicus CORY, List Bds. W. I. p. 31 (1885).

SP. CHAR. Male:—Top of head brownish black; a stripe of brown through the eye, and a parallel stripe of the same color below, separated by a narrow stripe of tawny; a narrow tawny superciliary stripe; throat tawny brown, the feathers marked with chestnut, heaviest on the lower part; underparts dull white, marked with yellowish brown; feathers of the back having the centres black, and heavily edged with chestnut; quills and tail dark brown; secondaries white, tipped with brown, forming a large white patch on the wing. In some plumages the male is described as having the entire head black.

The female differs from the male in lacking the chestnut marking on the upper parts, which is replaced by pale brown, bill dark brown, almost black.

Length, 12.00; wing, 5.30; tail 3.10; tarsus, 90; bill, 1.30.

HABITAT. Antilles.

GENUS *Lophodytes* REICH.

Lophodytes REICHENBACH, Syst. Av. p. IX, 1852.

Lophodytes cucullatus (LINN.).

Mergus cucullatus LINN. Syst. Nat. I, 10th ed. p. 129 (1758); *ib.* 12th ed. p. 207 (1766).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. J. f. O. 1862, p. 93 (Cuba).—CORY, List Bds. W. I. p. 31 (1885).

Lophodytes cucullatus GUNDL. Repert. Fisico-Nat. Cuba, I, p. 391 (1866); *ib.* J. f. O. 1875, p. 385 (Cuba).

Accidental in Cuba.

FAMILY FREGATIDÆ.

GENUS *Fregata* CUV.

Fregata CUVIER, Lec. d'Anat. Comp. I, tabl. II, 1799-1800.

Fregata aquila (LINN.).

Pelecanus aquilus LINN. Syst. Nat. I, 10th ed. p. 133 (1758); *ib.* 12th ed. p. 216 (1766).

Fregata aquila D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 309 (1840).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—LAWR. Pr. U. S. Nat. Mus. I, p. 65 (1878) (Dominica) (?) *ib.* p. 195 St. Vincent; *ib.* p. 236 (Antigua); *ib.* p. 240 (Barbuda); *ib.* p. 274 (Grenada); *ib.* p. 359 (Martinique).—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Fregata aquilus GOSSE, Bds. Jam. p. 422 (1847).

Tachypetes aquilus A. & E. NEWTON, Ibis, 1859, p. 369 (St. Croix).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 126 (1859) (Bahamas).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 396 (1866); *ib.* J. f. O. 1874, p. 315 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 421 (1878) (Porto Rico).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 98 (1867) (San Domingo).—CORY, Bds. Bahama I. p. 200 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 173 (1885).

Tachypetes aquila WELLS, List Bds. Grenada, p. 10 (1886).

Abundant in the Bahamas and throughout the Antilles

FAMILY PELECANIDÆ.

GENUS *Pelecanus* LINN.

Pelecanus LINNÆUS, Syst. Nat. 1735; *ib.* 10th ed. I, p. 132, 1758.

Pelecanus fuscus LINN.

Pelecanus fuscus LINN. Syst. Nat. I, p. 215 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 300 (1840).—GOSSE, Bds. Jam. p. 409 (1847).—A. & E. NEWTON, Ibis, 1859, p. 368 (St. Croix).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* BREWER, p. 308 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 394 (1866).—LAWR. Ann. Lyc. N. Y. VIII, p. 101 (1867) (Sombbrero).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 603 (Porto Rico).—LAWR. Pr. U. S. Nat. Mus. I, p. 66 (1878) (Dominica); *ib.* p. 196 (St. Vincent); *ib.* p. 236 (Antigua); *ib.* p. 240 (Barbuda); *ib.* p. 274 (Grenada); *ib.* p. 359 (Martinique).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 416 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 196 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 172 (1885); *ib.* List Bds. W. I. p. 32 (1885).—WELLS, List Bds. Grenada, p. 10 (1886).

The Brown Pelican is common in the Bahama Islands, the Greater Antilles, and in many of the Lesser Antilles.

FAMILY PHALACROCORACIDÆ.

GENUS *Phalacrocorax* BRISS.

Phalacrocorax BRISSON, Orn. VI, p. 511, 1760.

Phalacrocorax dilophus floridanus (AUD.).

Phalacrocorax floridanus AUD. Orn. Biog. III, p. 387 (1835).—LEMB. Aves Cuba, p. 119 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. J. f. O. 1862, p. 95 (Cuba).—*Graculus floridanus* BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 128 (1859) (Bahamas).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 394 (1866); *ib.* J. f. O. 1875, p. 400 (Cuba).—*Graculus dilophus* var. *floridanus* CORY, Bds. Bahama I. p. 198 (1880).—*Phalacrocorax dilophus floridanus* RIDGW. Nom. N. A. Bds. No. 643 a (1881).—CORY, List. Bds. W. I. p. 32 (1885).

Accidental in the Bahamas and Cuba.

Phalacrocorax mexicanus (BRANDT).

Carbo mexicanus BRANDT, Bull. Sc. Ac. Imp. St. Pet. III, p. 56 (1837).

Phalacrocorax resplendens LEMB. Aves Cuba, p. 119 (1850).—GUNDL.

J. f. O. 1862, p. 95 (Cuba).

Phalacrocorax townsendi LEMB. Aves Cuba, p. 120 (1850).—GUNDL.

J. f. O. 1862, p. 95 (Cuba).

Phalacrocorax mexicanus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—CORY, List Bds. W. I. p. 32 (1885).

Graculus mexicanus GUNDL. Repert. Fisico-Nat. Cuba, I, p. 395 (1866);
ib. J. f. O. 1875, p. 401 (Cuba).

Recorded from Cuba.

FAMILY ANHINGIDÆ.**GENUS Anhinga BRISS.**

Anhinga BRISS. Orn. VI, p. 476, 1760.

Anhinga anhinga (LINN.).

Plotus anhinga LINN. Syst. Nat. I. p. 218 (1766).—LEMB. Aves Cuba, p. 120 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. J. f. O. 1862, p. 96 (Cuba); *ib.* Repert. Fisico-Nat. Cuba, I, p. 395 (1866); *ib.* J. f. O. 1875, p. 405 (Cuba).—CORY, List Bds. W. I. p. 32 (1885).

This species is stated to be common in many parts of Cuba.

FAMILY SULIDÆ.**GENUS Sula BRISS.**

Sula BRISSON, Orn. VI, p. 495, 1760.

Sula cyanops (SUNDEV.).

Dysporus cyanops SUNDEV. Phys. Tidskr. Lund. pt. 5 (1837).

Sula dactylatra? BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 125 (1859) (Bahamas); XI, p. 97 (1867) (San Domingo).—CORY, Bds. Bahama I. p. 194 (1880).

Sula cyanops CORY, Bds. Haiti & San Domingo, p. 170 (1885); *ib.* List Bds. W. I. p. 32 (1885).

SP. CHAR.—Large. General color white; remiges and greater wing-coverts dark brown; middle rectrices hoary white, tipped with brown; rest of tail dark brown, white at the base; feet reddish? gular sac bluish. Wing, 16.00; tail, 7.70; bill, 3.90; tarsus, 1.85.

HABITAT. West Indies, Bahamas, breeding (*Bryant*).

Sula sula (LINN.).

Pelecanus sula LINN. Syst. Nat. ed. 12, I, p. 218 (1766).

Pelecanus leucogastra BODD. Tabl. Pl. Enl. p. 57 (1783).

Sula fusca D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 306 (1840).—GOSSE, Bds. Jam. p. 417 (1847).—SALLÉ, P. Z. S. 1857, p. 237 (San Domingo).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica); *ib.* GUNDL. p. 95 (Cuba).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 97 (1867) (San Domingo).

Sula fiber GOSSE, Bds. Jam. p. 417 (1847).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 123 (1859) (Bahamas).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).—LAWR. Ann. Lyc. N. Y. VIII, p. 101 (1867) (Sombrero); Pr. U. S. Nat. Mus. I, p. 196 (1878) (St. Vincent); *ib.* p. 274 (Grenada).—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—CORY, Bds. Bahama I. p. 191 (1880).—WELLS, List. Bds. Grenada, p. 11 (1886).

Dysporus sula A. & E. NEWTON. Ibis, 1859, p. 369 (St. Croix).

Dysporus fiber GUNDL. Repert. Fisico-Nat. Cuba, I, p. 395 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 402 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 418 (1878) (Porto Rico).

Dysporus leucogaster SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 591 (St. Bartholomew).

Sula leucogastra A. & E. NEWTON. Handb. Jamaica, p. 112 (1881).—CORY, Bds. Haiti & San Domingo, p. 171 (1885); *ib.* List Bds. W. I. p. 32 (1885).

Sula sula RIDGW. Pr. U. S. Nat. Mus. VIII, p. 356 (1885).

SP. CHAR. *Adult*:—Head, throat, upper part of breast, and entire upper plumage dark olive brown; underparts white; gular sac pale yellow; upper mandible greenish; feet pale yellowish green; iris yellowish.

Length, 27.00; wing, 15.50; tail, 8.00; tarsus, 1.60; bill, 4.00.

HABITAT. Antilles.

Sula piscator (LINN.).

Pelecanus piscator LINN. Syst. Nat. I, 10th ed. p. 134 (1758); *ib.* 12th ed. p. 217 (1766).

Sula parva? GOSSE, Bds. Jam. p. 219 (1847).—WELLS, List Bds. Grenada, p. 11 (1886).

Sula piscator GOSSE, Bds. Jam. p. 418 (1847).—A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, List Bds. W. I. p. 32 (1885).—WELLS, List Bds. Grenada, p. 11 (1886).

Dysporus hernandezi GUNDL. J. f. O. 1878, p. 298 (Cuba).

Dysporus piscator GUNDL. J. f. O. 1881, p. 401 (Cuba).

SP. CHAR. *Adult Male*:—General plumage white, showing a buff tinge on the head and neck; shafts of the tail-feathers pale yellow; remiges and most of the wing-coverts slaty gray, showing an ash tinge; feet reddish.

Young in first plumage:—General plumage grayish brown above; dull gray beneath, sometimes whitish; plumage very variable.

Length, 28.00; wing, 14.50; tail, 8.00; tarsus, 2.10; bill, 3.30.

HABITAT. West Indies.

FAMILY PHAËTHONTIDÆ.

GENUS *Phaëthon* LINN.

Phaëthon LINNÆUS, Syst. Nat. 1756; *ib.* I, p. 134, 1758.

Phaëthon flavirostris BRANDT.

Phaëthon flavirostris BRANDT, Bull. Soc. Acad. St. Petersburg. II, p. 349 (1837).—LAWR. Pr. U. S. Nat. Mus. I, p. 65 (1878) (Dominica).—*ib.* p. 240 (Barbuda); *ib.* p. 359 (Martinique).—CORY, Bds. Bahama I. p. 204 (1880); *ib.* Bds. Haiti & San Domingo, p. 175 (1885); *ib.* List Bds. W. I. p. 33 (1885).

Phaëton flavirostris? BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 128 (1859) (Bahamas).—*ib.* BREWER, p. 308 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I. p. 395 (1866).—LAWR. Ann. Lyc. N. Y. VIII, p. 103 (1867) (Sombbrero).—GUNDL. J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 403 (Cuba); *ib.* 1878, p. 163 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 419 (1878) (Porto Rico).

Adult Male:—Bill pale orange yellow; general plumage white, sometimes slightly rosy-tinted; most of primaries showing much black; a streak passing through the eye; some of the wing-coverts and shafts of tail-feathers black; tail extended into two very long feathers which are reddened; tarsus bluish; iris black; webs and toes black.

Length, including tail-feathers, 31.50; wing, 11.00; tail, 21.00; tarsus, .90; bill, 2.00.

HABITAT. Bahamas and Antilles.

Phaëthon æthereus LINN.

Phaëthon æthereus LINN. Syst. Nat. I, 10th ed. p. 134 (1758); *ib.* 12th ed. p. 219 (1766).—GOSSE, Bds. Jam. p. 430 (1847).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 590 (St. Bartholomew); *ib.* p. 603 (Porto Rico).—LAWR. Pr. U. S. Nat. Mus. I, p. 195 (1878) (St. Vincent); *ib.* p. 274 (Grenada); *ib.* p. 460 (Guadeloupe).—A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, List Bds. W. I. p. 33 (1885); *ib.* Ibis, 1886, p. 474 (La Desirade).—WELLS, List Bds. Grenada, p. 11 (1886).

Phaëton æthereus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois, p. 312 (1840).—GUNDL. J. f. O. 1862, p. 96 (Cuba); *ib.* ALBRECHT, p. 207 (Jamaica).

SP. CHAR.—Bill red; General plumage white; a black crescent in front of the eye; a stripe extending from the eye to the occiput; outer webs of outer primaries, and most of the primary coverts, black; rest of upper surface irregularly barred with dull black; flanks striped; elongated central tail-feathers white, basal portion of the shafts black; tarsus yellowish orange? this color reaching to the first joint of the toes, including the web between the inner and hind toes; rest of feet black.

Length, 31.00; wing, 12.00; bill, 2.45.

Recorded from Cuba, Jamaica, Porto Rico, St. Vincent, Grenada, Guadeloupe, St. Bartholomew, and La Desirade.

FAMILY RYNCHOPIDÆ.**GENUS Rynchops LINN.**

Rynchops LINNÆUS, Syst. Nat. I, 10th ed. p. 228, 1758; *ib.* 12th ed. p. 228, 1776.

Rynchops nigra LINN.

Rynchops nigra LINN. Syst. Nat. I, 10th ed. p. 228 (1758); *ib.* 12th ed. p. 228 (1766).—A. & E. NEWTON, Ibis, 1859, p. 371 (St. Croix)?—CORY, List Bds. W. I. p. 33 (1885).

Rhynchops nigra GUNDL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866); *ib.* J. f. O. 1875, p. 395 (Cuba).

Accidental in Cuba and St. Croix.

FAMILY LARIDÆ.

GENUS *Larus* LINN.

Larus LINNÆUS, Syst. Nat. I. p. 136, 1758.

Larus atricilla LINN.

Larus atricilla LINN. Syst. Nat. I, 10th ed. p. 136 (1758); *ib.* 12th ed. p. 225 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 315 (1840).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas); *ib.* BREWER, p. 308 (1860) (Cuba).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 590 (St. Bartholomew); *ib.* p. 603 (Porto Rico).—LAWR. Pr. U. S. Nat. Mus. I, p. 238 (1878) (Antigua); *ib.* p. 142 (Barbuda); *ib.* p. 277 (Grenada); *ib.* p. 462 (Gadeloupe).—CORY, Bds. Bahama I, p. 208 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 117 (1881).—CORY, Bds. Haiti & San Domingo, p. 177 (1885); *ib.* List Bds. W. I. p. 33 (1885).—WELLS, List Bds. Grenada, p. 11 (1886).

Nema atricilla GOSSE, Bds. Jam. p. 437 (1847).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).

Chræcocephalus atricilla A. & E. NEWTON, Ibis, 1859 p. 371 (St. Croix).

Chroicocephalus atricilla GUNDL. Repert. Fisico-Nat. Cuba, I, p. 391 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 385 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 408 (1878) (Porto Rico).

Common throughout the West Indies.

Larus argentatus BRUNN.

Larus argentatus BRÜNN. Orn. Bor. p. 44 (1764).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—ALBRECHT, J. f. O. 1861, p. 215 (Cuba).—CORY, List Bds. W. I. p. 33 (1885).

Larus marinus LEMB. Aves Cuba, p. 122 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. J. f. O. 1862, p. 95 (Cuba).

Larus zonorhynchus GUNDL. J. f. O. 1862, p. 94 (?) (Cuba).

Larus smithsonianus GUNDL. Repert. Fisico-Nat. Cuba, I, p. 391 (1866); *ib.* J. f. O. 1875, p. 387 (Cuba).

Cuba and Bahamas in winter.

Larus franklinii SWAINS.

Larus franklinii SWAINS. & RICH. F. B. A. II, p. 424, pl. 71 (1831).

Larus franklini SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 590 (St. Bartholomew).—CORY, List Bds. W. I. p. 33 (1885).

Recorded from St. Bartholomew.

Larus philadelphia is claimed to have been *seen* at Long Island, Bahamas. There is no actual record of the capture of this species in the West Indies.

GENUS *Gelochelidon* BREHM.

Gelochelidon BREHM, Naturg. Vög. Deutschl. 1831, p. 774.

Gelochelidon nilotica (HASSELQ.).

Sterna nilotica HASSELQ. Reise nach Pal. Deutschl. Ausg. 1762, p. 325.

Sterna anglica MONT. Orn. Dict. Suppl. 1813. — D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 321 (1840). — MOORE, Pr. Bost. Soc. Nat. Hist. XIX, p. 141 (1877) (Bahamas). — CORY, Bds. Bahama I. p. 209 (1880); *ib.* List Bds. W. I. p. 33 (1885).

Gelochelidon aranea BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba). — GUNDEL, J. f. O. 1862, p. 94 (Cuba).

Gelochelidon anglica GUNDEL. Repert. Fisico-Nat. Cuba, I, p. 392 (1866); *ib.* J. f. O. 1875, p. 388 (Cuba).

Gelochelidon nilotica STEJN. Auk, I, p. 366 (1884).

Bahamas and Antilles.

GENUS *Sterna* LINN.

Sterna LINNÆUS, Syst. Nat. I, ed. 10, p. 137 (1758); *ib.* ed. 12, p. 227 (1766).

Sterna maxima BODD.

Sterna maxima BODD. Tabl. Pl. Enl. p. 58 (1783). — SAUNDERS, P. Z. S. 1876, p. 655 (W. I.). — LAW. Pr. U. S. Nat. Mus. I, p. 198 (1878) (St. Vincent); *ib.* p. 488 (Antigua); *ib.* p. 242 (Barbuda); *ib.* p. 277 (Grenada); *ib.* p. 462 (Gadeloupe). — A. & E. NEWTON, Handb. Jamaica, p. 117 (1881). — CORY, Bds. Haiti & San Domingo, p. 178 (1885); *ib.* List. Bds. W. I. p. 33 (1885).

Sterna cayennensis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 319 (1840).

Thalasseus cayanus GOSSE, Bds. Jam. p. 431 (1847).

Thalasseus regius A. & E. NEWTON, Ibis, 1859, p. 371 (St. Croix). — GUNDEL. Repert. Fisico-Nat. Cuba, I, p. 392 (1866). — LAW. Ann. Lyc. N. Y. VIII, p. 103 (1867) (Sombrero). — GUNDEL, J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 388 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 410 (1878) (Porto Rico).

Sterna regia BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas); *ib.* XI, p. 98 (1867) (San Domingo). — SCL. P. Z. S. 1861,

p. 82 (Jamaica).—CORY, Bds. Bahama I. p. 210 (1880).—WELLS, List Bds. Grenada, p. 11 (1886).

Gelochelidon cayennensis BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Bahamas and Antilles.

Sterna sandvicensis acuflavida.

Sterna cantiaa GMEL. Syst. Nat. I, p. 606 (1788)?—CORY, Bds. Bahama I, p. 211 (1880); *ib.* List Bds. W. I. p. 33 (1885).

Sterna acuflavida CABOT, Pr. Bost. Soc. Nat. Hist. II, p. 257 (1847).—BRYANT, *ib.* VII, p. 134 (1859) (Bahamas).

Thalassens acuflavidus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 392 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 390 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 411 (1878) (Porto Rico).

Thalassens acuflavida GUNDL. J. f. O. 1862, p. 94 (Cuba).

Sterna sandvicensis acuflavida RIDGW. Water Bds. N. Am. II, p. 288 (1884).

Bahamas and Antilles.

Sterna hirundo LINN.

Sterna hirundo LINN. Syst. Nat. I, ed. 10, p. 137 (1758); *ib.* ed. 12, p. 227 (1766).—CORY, Bds. Bahama I. p. 211 (1880); *ib.* List Bds. W. I. p. 33 (1885).

Sterna wilsoni BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas.)

Accidental in the Bahama Islands.

Sterna anosthætus SCOP.

Sterna anosthætus SCOP. Del. Faun. et Flor. Ins. II, No. 72 (1786).

Haliplana discolor COUES, Ibis, 1864, p. 392.—LAWR. Ann. Lyc. N. Y. VIII, p. 104 (1867) (Sombbrero).

Sterna anosthæta CORY, Bds. Bahama I. p. 215 (1880); *ib.* List Bds. W. I. p. 33 (1885).—WELLS, List Bds. Grenada, p. 11 (1886).

Haliplana anæsthesia GUNDL. J. f. O. 1881, p. 400 (Cuba).

SP. CHAR. — Bill black; cap black; forehead white, *extending like two horns over each eye and reaching behind them*; upper back grayish, shading into the white on the sides of the neck; upper plumage grayish brown; underparts white; primaries dark brown, the first

and second showing a clear band of white on the inner webs, not reaching within an inch of the tips, and gradually fading on the others; upper tail-coverts slaty gray; outer tail-feathers *almost entirely white*, showing a tinge of brownish near the tip; legs and feet black; iris brown.

Length, 14.25; wing, 10.00; tail, 6.25; tarsus, .70; bill, 1.50.

Common in the Bahama Islands; breeds. Cuba, Sombrero; probably occurs throughout the West Indies.

Sterna fuliginosa GMEL.

Sterna fuliginosa GMEL. Syst. Nat. I, p. 605 (1788). — D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 319 (1840). — BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas); *ib.* XI, p. 98 (1867) (San Domingo). — SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 589 (St. Bartholomew); *ib.* p. 603 (Porto Rico). — LAW. Pr. U. S. Nat. Mus. I, p. 68 (1878) (Dominica); *ib.* p. 277 (Grenada); *ib.* p. 462 (Guadeloupe). — CORY, Bds. Bahama I. p. 214 (1880). — A. & E. NEWTON, Handb. Jamaica, p. 117 (1881). — CORY, Bds. Haiti & San Domingo, p. 181 (1885); *ib.* List Bds. W. I. p. 33 (1885). — WELLS, List Bds. Grenada, p. 11 (1886).

Hydrochelidon fuliginosa GOSSE, Bds. Jam. p. 433 (1847). — BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba). — ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).

Onychoprion fuliginosus A. & E. NEWTON, Ibis, 1859, p. 371 (St. Croix)? — CASSIN, Pr. Acad. Nat. Sci. Phila, 1860, p. 379 (St. Thomas).

Haliplana fuliginosa GUNDEL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866); *ib.* J. f. O. 1875, p. 393 (Cuba); *ib.* 1878, p. 163 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 414 (1878) (Porto Rico).

Bahamas and Antilles.

Sterna dougalli MONT.

Sterna dougalli MONT. Orn. Dict. Suppl. (1813). — SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 589 (St. Bartholomew). — LAW. Pr. U. S. Nat. Mus. I, p. 488 (1878) (Dominica); *ib.* p. 238 (Antigua) *ib.* p. 277 (Grenada); *ib.* p. 360 (Martinique); *ib.* p. 462 (Guadeloupe). — CORY, List Bds. W. I. p. 33 (1885). — WELLS, List Bds. Grenada, p. 11 (1886).

Sterna paradisaea GUNDEL. Repert. Fisico-Nat. Cuba, I, p. 392 (1866); *ib.* J. f. O. 1875, p. 391 (Cuba); *ib.* 1878, p. 163 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 411 (1878) (Porto Rico). — CORY, Bds. Bahama I. p. 212 (1880).

Common throughout the West Indies.

Sterna antillarum (LESS.).

Sternula antillarum LESS. Descr. Mam. et Ois. p. 256 (1847).

Sterna argentea GOSSE, Bds. Jam. p. 437 (1847). — ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).

Sterna minuta LEMB. Aves Cuba, p. 123 (1850).

Sternula frenata BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba). — GUNDL. J. f. O. 1862, p. 93 (Cuba).

Sterna antillarum GUNDL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866). — BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 98 (1867) (San Domingo).

— GUNDL. J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 391 (Cuba); *ib.* 1878, p. 163 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 412 (1878) (Porto Rico). — SAUNDERS, P. Z. S. 1876, p. 661 (Antilles). — LAW. Pr. U. S. Nat. Mus. I, p. 68 (1878) (Dominica). — A. & E. NEWTON, Handb. Jamaica, p. 117 (1881). — CORY, Bds. Haiti & San Domingo, p. 179 (1885); *ib.* List Bds. W. I. p. 33 (1885).

Sterna minuta americana SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 589 (St. Bartholomew).

Sterna superciliaris CORY, Bds. Bahama I. p. 213 (1880).

Bahamas and Antilles.

GENUS Hydrochelidon BOIE.

Hydrochelidon BOIE, Isis, 1822, p. 563.

Hydrochelidon nigra surinamensis (GMEL.).

Rallus lariformis LINN. Syst. Nat. I, 10th ed. p. 153 (1758)?

Sterna surinamensis GMEL. Syst. Nat. I, 2nd part, p. 604 (1788).

Hydrochelidon nigra GOSSE, Bds. Jam. p. 437 (1847). — ALBRECHT, J. f. O. 1862, p. 207 (Jamaica). — SAUNDERS, P. Z. S. 1876, p. 642 (W. I.). — A. & E. NEWTON, Handb. Jamaica, p. 117 (1881).

Sterna nigra LEMB. Aves Cuba, p. 124 (1850).

Hydrochelidon surinam BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Hydrochelidon plumbea GUNDL. J. f. O. 1862, p. 93 (Cuba).

Hydrochelidon fissipes GUNDL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866); *ib.* J. f. O. 1875, p. 393 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 413 (1878) (Porto Rico).

Hydrochelidon lariformis COUES, Bds. N. W. p. 704 (1874). — CORY, List Bds. W. I. p. 34 (1885).

Hydrochelidon nigra surinamensis STEJN. Pr. U. S. Nat. Mus. V, p. 40 (1882).

Antilles in winter.

GENUS *Anous* LEACH.

Anous LEACH, Shaw's Gen. Zool. XIII, p. 139, 1826.

Anous stolidus (LINN.).

Sterna stolidus LINN. Syst. Nat. I, 10th ed. p. 137 (1758); *ib.* 12th ed. p. 227 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 317 (1840).

Megaloptyernus stolidus GOSSE, Bds. Jam. p. 434 (1847).

Anous stolidus BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas); *ib.* BREWER, p. 308 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866).—LAWR. Ann. Lyc. N. Y. VIII, p. 105 (1867) (Sombrero).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 590 (St. Bartholomew).—GUNDL. J. f. O. 1875, p. 395 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 415 (1878) (Porto Rico).—LAWR. Pr. U. S. Nat. Mus. I, p. 488 (1878) (Dominica); *ib.* p. 277 (Grenada).—CORY, Bds. Bahama I. p. 216 (1880).—GRISDALE, Ibis, 1882, p. 486 (Montserrat).—CORY, Bds. Haiti & San Domingo, p. 182 (1885); *ib.* List Bds. W. I. p. 34 (1885).—WELLS, List Bds. Grenada, p. 12 (1886).

Sterna (Anous) stolidus BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 97 (1867) (San Domingo).

Abundant in the Bahamas and Antilles.

FAMILY PROCELLARIIDÆ.

GENUS *Oceanites* KEYS. & BLAS.

Oceanites KEYSERLING & BLASIUS, Wirb. Eur. I, p. xciii, 1840.

Oceanites oceanicus (KUHLE).

Procellaria oceanica KUHLE, Beitr. Zool. 1820, Mon. Proc. p. 136, pl. 10, fig. 1.

Thalassidroma wilsonii BRYANT, Pr. Bost. Soc. Nat. Hist., VII, p. 131 (1859) (Bahamas).

Oceanites wilsoni GUNDL. Repert. Fisico-Nat. Cuba, I, p. 394 (1866); *ib.* J. f. O. 1875, p. 396 (Cuba).

Oceanites oceanica CORY, Bds. Bahama I. p. 218 (1880).

Oceanites oceanicus CORY, List Bds. W. I. p. 34 (1886).—WELLS, List Bds. Grenada, p. 12 (1886).

Bahamas and Antilles.

GENUS *Æstrelata* BP.*Æstrelata* BONAPARTE, Consp. Avium, II, p. 188, 1856.*Æstrelata jamaicensis* (BANCROFT).*Procellaria jamaicensis* BANCROFT, Zool. Journ. V, p. 81 (1828)."*Æstrelata caribæa* AUCT."*Blue Mountain Duck* GOSSE, Bds. Jam. p. 437 (1847).*Pterodroma caribbæa* CARTE, P. Z. S. 1866, p. 93, pl. X.*Pterodroma caribbæus* GRAY, Handl. Bds. III, p. 107 (1871).*Æstrelata jamaicensis* A. & E. NEWTON, Handb. Jamaica, p. 117 (1881).—

BD. BWR. & RIDGW. Hist. N. Am. W. Bds. II, p. 394 (1884).—CORY,

List. Bds. W. I. p. 34 (1885).

SP. CHAR. *Male*:—General plumage dark sooty brown, paling slightly on the chin, forehead and upper part of the back, joining the neck; rump brownish black; upper tail-coverts dull white; quills and tail brownish black; bill and feet black.

The sexes are similar.

Length, 14.00; wing, 11.00; tail, 4.75; tarsus, 1.40; bill, 1.25 to 1.50.

HABITAT. Jamaica.

Æstrelata hasitata (KÜHL).*Procellaria hasitata* "KÜHL, Mon. Proc. Beitr. Zool. p. 142, No. 11 (1820)."? *Procellaria diabolica* L'HERMINIER, MSS.—LAWR. Pr. U. S. Nat.

Mus. 1879, p. 450 (Gaudeloupe).

Æstrelata hesitata BD. BWR. & RIDGW. Hist. N. Am. W. Bds. II, pp.

394-395 (1884) (Haiti).—CORY, List Bds. W. I. p. 34 (1885).

It is probable that this bird is occasionally to be found in the West Indies. One specimen, claimed to have been taken near Haiti, is now in the British Museum.

GENUS *Puffinus* BRISSON.*Puffinus* BRISSON, Orn. VI, p. 131, 1760.*Puffinus major* FABER.*Puffinus major* FABER, Prodr. Isl. Orn. p. 56 (1822).—CORY, Bds. BahamaI. p. 218 (1880).—*ib.* List Bds. W. I. p. 34 (1885).

Recorded from the Bahama Islands.

Puffinus auduboni FINSCH.*Puffinus obscurus* BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 132 (1859)

(Bahamas).—SCL. P. Z. S. 1879, p. 765 (Montserrat).—CORY, Bds.

Bahama I. p. 219 (1880); *ib.* Bds. Haiti & San Domingo, p. 184 (1885).

Procellaria obscura BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 98 (1867) (San Domingo).

Puffinus auduboni FINSCH, P. Z. S. 1872, p. 111 (Bahamas).—GUNDL. J. f. O. 1881, p. 400 (Cuba).—CORY, List Bds. W. I. p. 34 (1885).

SP. CHAR.—Above glossy brown, shading into grayish upon the sides of the breast; below white; crissum brown and white; tail brown, the feathers faintly tipped with ashy; bill lead-color.

Length, 12.50; wing, 8.00; tail, 4.25; tarsus, 1.60; bill, 1.30.

HABITAT. Bahamas and Greater Antilles.

(To be concluded.)

DESCRIPTIONS OF SUPPOSED NEW BIRDS FROM LOWER CALIFORNIA, SONORA, AND CHIHUA- HUA, MEXICO, AND THE BAHAMAS.

BY WILLIAM BREWSTER.

DURING the past year I have received a large number of birds from Mexico, representing three distinct collections, one made by Mr. M. Abbott Frazar in Lower California between January 24 and December 31, 1887; another by Mr. J. C. Cahoon in the eastern central part of Sonora between January 31 and June 18, 1887; and the third by Mr. R. R. McLeod in the extreme western portions of Chihuahua during the years 1883, 1884 and 1885. The last, although comprising only about two hundred skins, has proved particularly rich in new and little known birds.

Full lists of the species taken or observed by each of these collectors, with such field notes as they have placed in my hands, will be prepared and published as soon as possible, the present paper being restricted to the supposed new species or subspecies. In determining these I have received invaluable aid from Mr. Ridgway who has been at much personal trouble in examining and reporting on the numerous specimens which I have submitted to him, and through whose kind offices I have been able to compare nearly all of the new birds with series, often including the types, of their nearest allies from the collection of the National Museum.

In my descriptions the names of colors have been determined,

in nearly all cases, by careful comparison with the plates in Mr. Ridgway's 'Nomenclature of Colors.' My measurements are in English inches and hundredths. I measure the wing with dividers from the bend to the tip of the longest primary, thus taking the chord, not the curve, of the wing. I measure the tail from the extremity of the oil glands to the end of the longest rectrix.

Ardea virescens frazari,* new subspecies.—FRAZAR'S GREEN HERON.

SUBSP. CHAR.—Similar to *A. virescens* but rather larger, the general coloring darker, duller, and more uniform; the neck more purplish, its sides as well as the forehead strongly glaucous; the light striping on the throat and fore neck more restricted.

♂ ad. (No. 14134, collection of W. Brewster, La Paz, Lower California, Feb. 7, 1887; M. Abbott Frazar). Top of head and occipital crest dark bottle-green, the forehead with a slight hoary or plumbeous cast; a narrow stripe of creamy buff, spotted rather thickly and coarsely with dull black, extending down the middle of the throat and fore neck; remainder of head and neck dark purplish maroon, tinged—most strongly on sides of neck—with hoary or glaucous; rest of upper parts nearly uniform dull green, varied, however, by a plumbeous tone on the primaries, a purplish brown tinge on the dorsal plumes, and a narrow rusty edging on both webs of most of the upper wing-coverts; edge of wing rusty white; lining of wing, under wing-coverts, and the lower parts generally, plain slate-gray. Wing, 7.04; tarsus, 2.22; culmen from feathers, 2.52.

A second specimen (♂ ad. La Paz, Feb. 14, 1887) is precisely similar in coloring to the bird just described. It measures, wing, 7.37; tarsus, 2.28; culmen from feathers, 2.50.

Habitat. Near La Paz, Lower California.

Although the points of difference between this bird and true *A. virescens* are not easily expressed, they are nevertheless apparent on the most casual comparison, or, indeed, without any comparison whatever. The deeper, more purplish maroon of the neck with its decided glaucous tinge, is perhaps the best character of the new form. None of the specimens in the National Museum from the west coast of Mexico show any approach to *frazari*, all being apparently true *virescens*.

Ardea bahamensis, new species.—BAHAMA GREEN HERON.

SP. CHAR.—Smaller than *A. virescens*; the general coloring much paler, browner, or yellower, and more uniform; the forehead strongly tinged with brownish; the light edging of the secondaries broader; the dorsal plumes and rump only slightly, sometimes not at all, greenish.

♂ ad. (No. 108,819, collection Nat. Mus., Watling's Island, Bahamas,

*To M. Abbott Frazar of Watertown, Mass.

March 8, 1886). Top of head dark, dull green strongly tinged with brownish on the forehead; throat, jugulum and fore neck creamy white with dusky spotting on the jugulum; remainder of head and neck light chestnut, approaching cinnamon in places; fore part and sides of back rusty cinnamon; rump and most of upper tail-coverts drab; dorsal plumes dull greenish, the central ones glaucous with a tinge of lilac; wings and tail dull green, the wing-coverts edged broadly on both webs, the secondaries more narrowly on the outer webs only, with rusty or whitish; under wing-coverts, breast, abdomen, crissum and sides of body light yellowish drab.

♀ ad. (No. 108,814, collection Nat. Mus., Rum Cay, Bahamas, March 2, 1886). Similar to the ♂ just described, but with the dorsal plumes duller, browner, and more strongly tinged with lilac.

A third specimen without sex mark (No. 108,645, collection Nat. Mus., Abaco, Bahamas, April 3, 1886), differs from both of those just mentioned in having the sides of head and neck as well as the fore back yellowish rusty or cinnamon rusty with scarcely a tinge of chestnut; the dorsal plumes brownish glaucous rather strongly glossed with lilac and without apparent greenish; and the wing-coverts very broadly edged with brownish white.

Measurements, extremes of six specimens: Wing, 6.15-6.50; tarsus, 1.75-2.08; bill (culmen from feathers), 2.09-2.54.

Habitat. Bahamas (Rum Cay, Watling's Island, Abaco).

All of the eight specimens of this Heron which I have examined are distinguishable at a glance from *A. virescens* by their decidedly paler, browner and more uniform coloring. The difference is hardly of a kind or degree that would warrant the separation of the new form as a full species, were it not for its island habitat which, of course, renders intergradation with *A. virescens* improbable. The latter, curiously enough, seems to be generally distributed throughout the remainder of the West Indies, for, in the rather large West Indian series in Mr. Cory's collection and that of the National Museum, I do not find any birds that differ appreciably from *virescens*, excepting possibly in size, the West Indian skins averaging considerably smaller than those from the United States at large, although they are not apparently smaller than those from Florida.

***Hæmatopus frazari*,* new species.—FRAZAR'S OYSTER CATCHER.**

SP. CHAR.—Differing from *H. palliatus* in having a stouter, more depressed bill, little or no white on the eyelids, the back, scapulars, and wing-coverts richer and deeper brown, the primaries and tail-feathers darker, the upper tail-coverts more or less varied with brown and white,

* To M. Abbott Frazar of Watertown, Mass.

the lateral under tail-coverts marked with brown, the bend of the wing and greater under primary coverts mottled with black and white; from *H. galapagensis* in the rather shorter bill and distinctly brown (instead of sooty black) back, scapulars, and wing-coverts, dark markings on the under tail-coverts, and greater amount of white on the under primary coverts; from both *palliatu*s and *galapagensis* in the broad zone of mottled black and white feathers extending across the breast.

♂ ad. (No. 14135, collection of W. Brewster, Carmen Island, Gulf of California, March 6, 1887; M. Abbott Frazar). Entire head and neck black with a greenish gloss most pronounced on the jugulum and hind neck; back, scapulars, lesser and middle wing-coverts rich seal-brown; wing quills, and tail-feathers brownish black, very much darker than the back, the concealed bases of the secondaries and tail-feathers pure white; shorter upper tail-coverts concolor with the back, longer ones white with broad bars and spots of brown on their tips and inner webs; under tail-coverts white with large, irregular bars and spots of brown on their outer webs; black of throat and jugulum extending rather farther down over the breast than in either *H. palliatu*s or *H. galapagensis*, and separated from the immaculate white of the lower breast, abdomen, anal region and sides by a broad zone of mottled black and white feathers; inner surface of primaries and greater under wing-coverts plain drab; middle under wing-coverts and contiguous exposed edge of wing mottled with dark brown and white, the brown prevailing; most of the remaining under wing-coverts and all the axillary feathers immaculate white; a trace of whitish at the bases of the feathers of the lower eyelids. Bill dull carmine; legs and feet flesh-color.*

Measurements, extremes of three specimens, all males: wing, 9.75-10.27; tail, 3.90-4.26; tarsus, 2.18-2.30; bill, length from nostril, 2.35-2.57; from feathers, 2.99-3.05; depth at angle, .49-.53.

Habitat. Pacific and Gulf Coasts of Lower California.

Although in several respects intermediate between *H. galapagensis* and *H. palliatu*s, this Oyster Catcher seems to be specifically distinct from either. Mr. Frazar found it common and evidently preparing to breed on the sandy islands and shores of the Gulf to the northward of La Paz, but, mistaking it for *H. palliatu*s, secured only three specimens. These present the characters above detailed, with almost perfect uniformity. A fourth example in the collection of the National Museum (Coronado Island, May 17, 1881, L. Belding) from the Pacific coast of the peninsula has a rather deeper bill and less white mottling on the breast. The latter difference, however, may be apparent rather than real, for the head is bent over on the back and the skin otherwise so distorted that it cannot be satisfactorily exam-

* In the dried specimen.

ined. It is a curious fact that in the National Museum collection true *H. palliatus* is represented from Isabella Island (west coast of Mexico), Tehuantepec, Peru, and Chili.

Columba fasciata vioscae,* new subspecies.—VIOSCA'S PIGEON.

SP. CHAR.—Similar to *C. fasciata* but with the tail band wanting or only faintly indicated, the general coloring lighter and more uniform, the vinaceous tints, especially on the head, neck and breast, much fainter and more or less replaced by bluish ash.

♂ *ad.* (No. 14138, collection of W. Brewster, La Laguna, Lower California, May 30, 1887; M. Abbott Frazar). Above bluish ash, deepest and purest on wing-coverts and rump, palest (nearly plain drab) on terminal half of tail, tinged slightly with olive brown on back and scapulars, and very faintly with vinaceous on the crown; a narrow half collar of white across upper hind neck, the remainder of the hind neck dull, metallic, bronzy green; primaries dark slaty brown; primaries, secondaries, and wing-coverts edged narrowly with white; basal half of tail uniform with rump, the terminal half drab (whitish on under side of the feathers), the two colors not separated by black as in *C. fasciata*, but merely shading rather abruptly into one another; under tail-coverts, crissum, and anal region white; abdomen whitish; flanks, sides, and under wing-coverts nearly concolor with the rump but a little lighter; remainder of underparts pinkish vinaceous with a strong tinge of glaucous; feet and basal two thirds of bill dull yellow, the terminal third of the bill black. Wing, 8.69; tail, 5.36; tarsus, 1.15; bill from feathers, .66.

♀ *ad.* (No. 14139, collection of W. Brewster, La Laguna, Lower California, May 31, 1887; M. Abbott Frazar). Smaller than the ♂, and slightly duller, the top of head browner. Wing, 8.00; tail, 5.47; tarsus, 1.07; bill from feathers, .69.

Habitat. Lower California.

The characters above proposed are shown by the large series (over one hundred specimens) before me to be sufficiently well marked and constant to entitle the Lower California bird to subspecific separation. Its general coloring is much paler and more uniform than that of true *fasciata*, the crown being faintly instead of strongly tinged with vinaceous, the underparts glaucous, instead of purplish, vinaceous, the back much ashier and less brownish. As a rule the tail-band is either wholly lacking or only faintly indicated, but a very few specimens have it distinctly marked. In *fasciata*, as far as I have observed, it is always present. Thirteen specimens of *fasciata* before me from various parts of the United States and the mainland of Mexico show only a

* To Mr. Viosca, United States Consul at La Paz, Lower California.

trifling variation in coloring. The lightest bird among them is darker than my darkest example of *C. f. viosca*.

At Mr. Frazar's request I have named this bird after Mr. Viosca, the U. S. Consul at La Paz, who has been most kind and helpful in furthering the success of Mr. Frazar's explorations.

Megascops aspersus,* new species.—SPOTTED SCREECH OWL.

Sp. CHAR.—Sides of head conspicuously fringed with black bristles, longest on auriculars and superciliary ruffs; tarsi densely feathered on all sides to the toes, the latter sparsely feathered above; throat and sides of neck pale rusty chestnut; remainder of plumage coarsely spotted and barred almost everywhere with dull black.

♀ *ad.* (No. 14125, collection of W. Brewster, El Carmen, Chihuahua, Mexico, May 6, 1884; R. R. McLeod). Sides of head from the lores to the auriculars both above and below the eye, but not including the 'ear-tufts,' with a fringe of fine, black, hair-like bristles formed by the elongation of the shafts and denuded terminal barbs of the feathers, these bristles longest on the auriculars and superciliary ruffs where they project half an inch or more. General coloring above dark brownish drab, below grayish white, the feathers of the top of head, hind neck, back, scapulars, wing coverts, and most of the underparts coarsely streaked longitudinally, and broadly barred transversely, with dull black; throat, tibiae, and a narrow space on the side of the neck, pale rusty chestnut barred with dark brown or dull black; anal region and lower half of tarsi immaculate; under tail-coverts with a few small spots of brown; forehead, lores, and anterior half of the auriculars finely barred with dark brown; under wing-coverts pinkish buff, a few of the feathers with fine dark streaks; rump nearly immaculate; tail crossed by about six narrow, rusty white bars fairly well defined on all the feathers excepting the central pair where they are only faintly indicated; scapulars with large, irregularly ovate, brownish white spots confined chiefly to the outer webs of the feathers; primaries and secondaries pale clove-brown, the primaries coarsely spotted or 'notched' on their outer webs with grayish, more or less rusty, white, these spots darker and duller on the inner three feathers; outer webs of secondaries similarly, but more obscurely spotted; inner webs of both primaries and secondaries with large buffy white spots separated from the shafts of all the feathers by a space of plain clove-brown, and on the primaries conspicuous only on the basal portion of each quill, although faintly indicated on its terminal half also. Length,† 7.50; extent,† 16.25; wing, 5.66; tail, 2.89; tarsus, 1.17; middle toe, .67; culmen from nostril, .40; greatest depth of bill, .41; length of longest feathers of ear tufts, 1.00.

Young in first plumage (♀ No. 14126, collection W. Brewster, El Carmen, Aug. 22, 1884; R. R. McLeod). General coloring paler than in the adult, the ground color above pinkish drab, that of the underparts muddy white, the coarse black streaks and bars wanting, but most of the

* *Aspersus* = spotted.

† Collector's measurements from fresh specimen.

plumage barred finely and rather faintly with reddish brown; under wing and tail-coverts immaculate; rump, wings, and tail precisely as in the adult, and sides of head with similar but less long and abundant bristles.

Habitat. Province of Chihuahua, Mexico.

This species is probably related rather closely to *Scops barbarus* Scl., with which it agrees (judging by descriptions, for I have seen no specimens of *barbarus*) in general style of coloration as well as in the possession of the curious fringe of bristles on the sides of the head, but from which it differs in the rusty chestnut of the throat and neck, the more numerous and conspicuous blackish spots and bars, and the more extended feathering on the legs and feet.

Megascops vinaceus,* new species.—CHIHUAHUA SCREECH OWL.

SP. CHAR.—Most nearly like *M. cooperi*, but much smaller and lighter colored.

♀, *ad.* (No. 14124, collection of W. Brewster, Durasno, Chihuahua, Mexico, Dec. 2, 1884; R. R. McLeod). Above pinkish, in places rusty drab. all the feathers except the outer primaries vermiculated with dark brown, those of the forehead, crown, 'ear-tufts,' back, scapulars, and wing-coverts with rather narrow shaft streaks of blackish or clove-brown. Primaries, secondaries and tail-feathers barred with light wood-brown, the bars on the tail narrow and distinct excepting on a short space near the tips of the feathers where they are broken and confused, those of the wings broad, distinct on the outer webs of the primaries where they form a conspicuous light notching, but on the inner webs of these feathers, as well as on both webs of the secondaries, only dimly outlined; cheeks, throat and entire underparts ashy white tinged with pinkish buff, most of the feathers with fine, wavy transverse bars of dull brown, those of the breast, abdomen, and under tail-coverts with narrow, sharply outlined mesial streaks of dark clove-brown; sides of neck and middle of breast with coarser, broader spots of the same color; tibiae and tarsi tinged with rusty chestnut, and flecked with burnt umber. Under wing-coverts creamy buff with sparse flecks of brown. Wing, 5.85; tarsus, 1.25; tail, 3.04; middle toe, .70; bill, length from nostril, .47; depth at nostril, .43; longest feathers of ear-tufts, .96.

Habitat. Province of Chihuahua, Mexico.

Otophanes,† new genus.

GEN. CHAR. Bill long, narrow, slender, with tubular nostrils opening for ward and outward, not upward; the gape with long, stiff, naked bristles curving downward and inward, meeting and overlapping under the chin; tarsus naked, about equal to middle toe; tail long (only about .80 inch shorter than wing), and slightly rounded, (graduation about .25 inch); wing compar-

* *Vinaceus* = vinaceous, of a pinkish color.

† οὖς (ὠτός) ear; φαίνω show.

actively short and rounded, the second and third quills equal and longest, the fourth slightly shorter, the first and fifth decidedly shorter than the fourth and equal. Plumage peculiarly soft and velvety; eyes bordered in front and above by semi-circlets of radiating feathers, the tips directed upward and outward forming distinct superciliary ruffs or shields which extend from the gape along the sides of the crown to the occiput where they terminate in tufts of elongated feathers, erectile in life and precisely similar in form and position to the 'ear tufts' of *Megascops*. The superciliary shields, also, are curiously Owl-like. The superciliary shields, as well as the feathers along the maxillary line and many of the auriculars, are tipped with a fringe of delicate, black, hair-like bristles of varying length, the longest extending about .30 inch beyond the ends of the feathers. Examined under a glass these bristles prove to be elongated shafts and terminal barbs lacking the barbules.

This remarkable genus is too strongly characterized to require comparison with either of its probably nearest allies, *Antrostomus* and *Phalænoptilus*. The type is:

Otophanes mcleodii,* new species.—EARED WHIPPOORWILL.

♀ ad. (No. 14123, collection of W. Brewster, Sierra Madre of Chihuahua, Mexico, Dec. 6, 1884; R. R. McLeod). Jugulum and tips of the tail-feathers (excepting the central pair) white; throat and cheeks light raw umber; remainder of the plumage reddish brown, varying in shade from light vandyke to burnt umber; the feathers almost everywhere (excepting on the white areas) delicately vermiculated with dull brown or grayish; a broad tipping on the central feathers of the crown, the shoulders, wings, tail, a band across the breast, another across the abdomen, and some large, more or less regularly heart-shaped spots on the scapulars, burnt umber, deepest on the crown, shoulders and scapular spots, several of the latter approaching seal-brown; some of the feathers of the abdomen and wing-coverts spotted with brownish white; primaries and secondaries tipped (the former to some extent edged, also) with light vandyke brown and crossed with numerous, rather narrow, dull black bands; all the tail-feathers excepting the central pair tipped with white, more or less tinged with rusty; this white tipping broadest on the second and third pair (counting the feathers inward), slightly narrower on the first pair, narrowest and strongly rusty on the fourth pair; its width varying from .25 to .45 of an inch. The second and third pairs of feathers have the white bounded basally by brownish black, immaculate on the inner webs for a space about .75 of an inch deep, but on the outer webs variegated somewhat with rusty brown; below these dark spaces the feathers just mentioned are banded narrowly across both webs to their bases with dark brown; the first (outer) and fourth (next to inner) pairs of feathers are crossed by about ten narrow, well defined brownish black bands distributed at regular intervals from the white tips to their bases;

*To R. R. McLeod of Houlton, Maine.

the central pair of feathers are without trace of white; they are barred faintly and confusedly with dull reddish brown. Wing, 4.82; tail, 3.97; tarsus, .65; bill, length of culmen from feathers, .20; from nostril, .21; width at nostril, .15; longest feathers of ear-tufts, .80.

Habitat. Province of Chihuahua, Mexico.

The type of this curious new genus and species was the only specimen obtained by Mr. McLeod during his stay in Mexico. It was brought to him alive by a Mexican boy and kept in a cage for nearly two weeks. During this time it refused all food excepting such as was literally forced down its throat. It moved its ear-tufts precisely as an Owl does, erecting them when approached or startled by any sudden noise, allowing them to droop back on the crown when it thought itself alone and safe. The Mexicans called it by a name which means "road-stopper," but this, I believe, is a designation given by them to other members of the family Caprimulgidae without distinction of species. Unfortunately the precise place of capture is not recorded on the label, but judging by the analogy furnished by other labels in the collection it must have been either near Durasno or El Carmen, probably the former.

Empidonax cineritius,* new species.—ST. LUCAS FLYCATCHER.

SP. CHAR.—Most nearly like *E. difficilis* but with the general coloring much duller, the upperparts with scarcely a tinge of greenish, no decided yellow beneath, excepting on jugulum and abdomen; wing-bands brownish white.

♂ *ad.* (No. 14136, collection of W. Brewster, La Laguna, Lower California, May 12, 1887; M. Abbot Frazar). Sides of head and neck and entire upperparts plain hair-brown, darkest on wings and tail, with the faintest possible tinge of olive on crown and nape; wing-bands and outer edges of secondaries brownish white; jugulum, abdomen, and crissum pale, slightly brownish, straw-yellow; breast ecru-drab; throat a duller, slightly browner, shade of the same; lores and a poorly defined orbital ring brownish white; bend of wing and under wing-coverts straw-yellow. Wing, 2.64; tail, 2.40; tarsus, .68; bill from nostril, .36. Sexes similar. (Type of ♀ No. 14137, collection of W. Brewster, La Laguna, Lower California, April 27, 1887; M. Abbott Frazar).

That the Yellow-bellied Flycatcher of the extreme southern portion of the peninsula of Lower California is distinct from its representative *E. difficilis* of the mainland of western North America, is shown conclusively by a series of some twenty-five

* *Cineritius* = ashy.

spring and summer specimens collected by Mr. Frazar. Among these the differences just pointed out are represented with great uniformity. In almost any other group of birds they would be perhaps hardly sufficient to warrant more than a subspecific separation, but with our North American *Empidonaces* the characters which distinguish forms proved by their habits, eggs, etc. to be perfectly distinct species, are often so slight as to be of little diagnostic value in the absence of series of determined specimens for comparison. Accordingly as I have no proof that the Flycatcher described above actually intergrades with its near ally *E. difficilis*, it seems wisest to claim for it the rank of a full species. Its characters will be found, I think, more constant and easily available than those which distinguish *E. minimus* from *E. trailli* or, to use an illustration more to the point, *E. difficilis* from *E. flaviventris*. The true *difficilis*, by the way, occurs in Lower California in winter.

***Icterus wagleri castaneopectus*,* new subspecies.—CHESTNUT-BREADED ORIOLE.**

SUBSP. CHAR.—Similar to *I. wagleri* but rather larger, the breast with a broad band of chestnut.

♂ ad (No. 14131, collection of W. Brewster, collector's number 638, Oposura, Sonora, Mexico, April 13, 1887; J. C. Cahoon). Head, neck, chest, back, scapulars, wings (excepting lesser and middle upper coverts and all the under coverts) and tail (with its upper and under coverts) deep, rather glossy, black; remainder of plumage, including the lesser and middle upper and all the under wing-coverts, rich brownish orange; black of throat and chest separated from orange of remaining underparts by a conspicuous band of chestnut, nearly half an inch wide on the centre of the breast, narrowing rapidly towards its extremities which are about opposite the shoulders. Length,† 9.00; extent,† 12.75; wing, 4.15; tail, 4.17; tarsus, 1.00; bill from nostril, .58. "Bill black, pale horn-color on sides of lower mandible at base."

Habitat. Mountain regions of Sonora and Chihuahua, Mexico.

I have before me eight examples of this Oriole, six taken in Chihuahua by Mr. McLeod, two in Sonora by Mr. Cahoon. Of these, seven present the characters above mentioned with al-

* *Castaneus* = chestnut; *pectus* = breast.

† Collector's measurement of fresh bird.

most perfect uniformity. The eighth has only a trace of the chestnut pectoral band, but its absence is probably due to the fact that the bird is either young or very immature, as is shown by the dull, faded appearance of the black portions of the plumage, by the paleness of the yellow of the underparts, and still more conclusively by the light edging on some of the tail-feathers. Among the fourteen specimens of *wagleri* examined, there is not one which has any approach to a chestnut band, although a few show traces of chestnut along the line of demarcation between the black and yellow of the underparts, thus indicating the probability of intergradation at points where the two forms meet. Typical *wagleri* is represented in the National Museum collection by specimens from Tepic, Guadalajara, Guanajuato and Coahuilla. Hence, its range extends nearly half around the habitat of *castaneopectus*. The latter is probably confined to the upper slopes and table lands of the Sierra Madre of Chihuahua and Sonora, where it is perhaps resident, for Mr. McLeod found it in Chihuahua late in December. Both forms may be confidently expected to occur as stragglers north of the Mexican boundary, *wagleri* along the Rio Grande, *castaneopectus* in the mountains of Southern Arizona.

Aimophila mcleodii,* new species.—MCLEOD'S SPARROW.

SP. CHAR.—Larger than *A. rufescens* but with the bill smaller (both shorter and slenderer); colors duller and more uniform; crown chestnut without trace of a median stripe; wings and tail nearly concolor with back.

♂ *ad.* (No. 14127, collection of W. Brewster, El Carmen, Chihuahua, Mexico, June 3, 1885; R. R. McLeod). Top of head dull chestnut, perfectly uniform on the crown, but with a few lighter colored feathers on the forehead near the base of the culmen; remainder of upperparts olive brown, tinged slightly with pale chestnut on the nape, interscapulars and wings, a few of the interscapulars with clove-brown shaft-streaks; wing-coverts and tertials tipped with drab; sides of head and neck plain hair-brown with a short, poorly defined post-ocular stripe of dull chestnut; entire lower parts light wood-brown, lightest—approaching brownish white—on the jugulum and abdomen, deepest—clayey—on the throat, flanks, and under tail-coverts; a distinct, broad, but short, blackish stripe on each side of the throat, bordered above by a maxillary stripe of the same color as the throat; lores dusky, bordered above by a brownish white stripe which starts at the nostril, and just above the eye is lost in the darker (hair-brown) color of the sides of the head; bend of wing and

* To R. R. McLeod of Houlton, Maine.

under wing-coverts whitish. Wing, 3.00; tail, 3.40; tarsus, .90; culmen from nostril, .42; depth of bill at nostril, .33.

♀ *ad.* (No. 14128, collection of W. Brewster, El Carmen, Nov. 10, 1884; R. R. McLeod). Much smaller than the male, the stripes on sides of throat duller and less conspicuous, the occiput and nape spotted with clove-brown. Wing, 2.55; tail, 2.75; tarsus, .88; culmen from nostril, .40; depth of bill at nostril, .32.

Aimophila cahooni,* new species.—CAHOON'S SPARROW.

SP. CHAR.—Of about the size and proportions of *A. mcleodii* but decidedly paler and grayer, the general coloring not unlike that of *A. sumichrasti*; the central feathers on top of head, especially on the forehead and occiput, tipped with ashy, which tends to form a median crown stripe; throat and central portion of abdomen nearly pure white, in contrast with the remainder of the underparts.

♂ *ad.* (No. 14129, collection of W. Brewster, collector's number 1074, near Oposura, Sonora, Mexico, June 2, 1887; J. C. Cahoon). Top of head pale chestnut, the feathers of the middle portion with light tips and edges; sides of head and neck, breast, and sides of body, smoke-gray, deepening on the flanks and under tail-coverts to broccoli-brown; throat and abdomen soiled white, the throat with a short, broad blackish stripe on each side, bordered above by a whitish maxillary stripe; lores and auriculars dusky gray; eyelids and superciliary stripe anterior to the eye, nearly pure white; a short post-ocular stripe of dull chestnut; wing-coverts, nape, back, and rump grayish olive, the interscapulars, wing-coverts and feathers of the hind neck with reddish brown centres, some of them with clove-brown shaft-streaks also; wings and tail brownish drab, tinged with cinnamon on the outer webs of the secondaries and on both webs of the tail-feathers, the latter with the faintest possible indication of dark bars; wing-coverts and tertials edged and tipped with pale drab; bill bluish horn-color; legs and feet light brown. Length,† 7.50; extent,† 9.45; wing, 3.15; tail, 3.36; culmen from nostril, .40; depth of bill at nostril, .30.

♀ *ad.* (No. 14130, collection of W. Brewster, collector's number 1047, near Oposura, May 31, 1887; J. C. Cahoon). Smaller than the male and rather grayer; the dark stripes on sides of throat duller and less well defined; feathers of a wide space over the centre of the crown extending from the hind neck nearly to the forehead, broadly tipped with smoke-gray, this light space bordered on each side from the crown to the lower hind neck by a band of dark brown or blackish spots, the two bands nearly meeting at their posterior extremities. Length,† 7.25; extent,† 9.25; wing, 2.79; tail, 2.98; tarsus, .97; culmen from nostril, .43; depth of bill at nostril, .40.

Habitat. Mountains near Oposura, Sonora, Mexico.

* To J. C. Cahoon of Taunton, Mass.

† Collector's measurements of fresh specimen.

Mr. Cahoon collected fourteen specimens of this fine new *Aimophila*. Among these the chief variation is in respect to the extent of the ashy tipping on the top of the head and the black spotting on the head and back. Some birds have the greater part of the crown ashy, the chestnut being confined to two stripes, one on each side. Others show only a faint trace of light color on the crown, and this confined to the tips of a few of the central feathers, but nearly all have a distinct, if short, medial light stripe invading the forehead from the base of the bill. In still others there is more or less blackish on the forehead with a well defined stripe of black or blackish spots extending from the forehead along each side of the crown to beyond the occiput. Abundant and conspicuous black streaking on the interscapulars is sometimes associated with the presence of these black head-stripes, sometimes found without them. In a very few birds the chestnut post-ocular stripe is also spotted with black.

The three forms of *Aimophila* just considered form a graduated series of which *A. rufescens* is the smallest and most deeply colored, *A. cahooni* the palest and grayest, as well as, probably, the largest, *A. mcleodii* being in many respects intermediate between the two, although apparently most nearly related to *A. cahooni*. The latter seems to be colored somewhat like *A. sumichrasti* (of which I have seen only descriptions) but it is very much larger. The range of variation exhibited by my series of *A. cahooni* renders it not improbable that all four of the forms just mentioned will be found to intergrade at points where their respective habitats meet, but the characters which distinguish them are too well marked and the material available too scanty to warrant any present action based on such a hypothesis. I have accordingly presented both the new forms as full species.

Troglodytes cahooni,* new species.—CAHOON'S WREN.

SP. CHAR.—Most nearly allied to *T. brunneicollis* Scl., but rather smaller, the tail decidedly shorter, the general coloring, both above and beneath, very much paler and grayer, the bars on the flanks and abdomen faint or nearly obsolete.

♂ ad. (No. 14132, collection of W. Brewster, collector's number 1045, near Oposura, Sonora, Mexico, May 13, 1887; J. C. Cahoon). Above grayish brown, the rump, tail, and wings slightly reddish but not decidedly rusty;

* To J. C. Cahoon of Taunton, Mass.

the back barred faintly, the wings and tail more distinctly, with darker brown; abdomen, crissum, anal region, and under tail-coverts soiled white, faintly flecked with brown on the flanks and under tail-coverts; remainder of underparts pale wood-brown; sides of head and neck flecked with grayish brown on a wood-brown ground; a poorly defined, inconspicuous, light superciliary stripe. Upper mandible dark*; lower mandible and feet pale flesh-color.* Length,* 4.75; extent,* 6.40; wing, 1.92; tail, 1.40; tarsus, .66; bill from nostril, .37. Sexes alike; type of ♀ No. 14133, collection of W. Brewster, same date, place, and collector as the ♂.

Habitat. Mountains near Oposura, Sonora, Mexico.

In general color and markings this species closely resembles *T. a. parkmani*, from which it is easily distinguishable, however, by its very much shorter tail and more tawny coloring beneath. It is evidently most nearly allied to *T. brunneicollis*. Among the eight specimens collected by Mr. Cahoon there is some variation with respect to the color of the underparts, but the deepest colored bird is much paler beneath than any specimen that I have seen of *T. brunneicollis*. One example is peculiar in having the bars on the tail confused and indistinct. Another has the superciliary stripe fairly well defined.

FIFTH MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE fifth meeting of the American Ornithologists' Union was held at the Museum of the Boston Society of Natural History, Boston, Mass., Oct. 11-13, 1887, the President in the chair. The meeting was attended by seventeen Active Members and twelve Associate Members. The report of the Secretary stated that the membership of the Union consisted of 46 Active Members, 25 Foreign Members, 70 Corresponding Members, and 143 Associate Members. The Union had lost by death during the year one of its founders and Councillors, Prof. Spencer F. Baird, —a loss irreparable to the Union, and one deeply felt throughout the scientific world. The date of the meeting for this year

* From collector's notes based on the fresh specimen.

had been fixed with special reference to Professor Baird's convenience, as he had given assurance that if he were alive, he would attend the meeting if held in Boston the second week in October. Hence the sense of loss was forcibly impressed upon all. His death occurred, as is well known,* at Wood's Holl, Mass., August 19, 1887.

In the death of Dr. J. M. Wheaton,† at Columbus, Ohio, Jan. 28, 1887, the Union also lost another original member, and an ornithologist of prominence, and one held in great esteem by his fellow-members. Dr. Julius von Haast, Director of the Canterbury Museum, Christchurch, New Zealand, a Corresponding Member of the Union, died at Bonn, August 15, 1887. Dr. Haast was especially known for his admirable researches respecting the remarkable extinct birds of New Zealand.

Mr. Samuel Wells Willard, of West DePere, Wis., an Associate Member, died at Chatanooga, Tenn., May 24, 1887, at the age of 28. He was a young man of unusual promise, and will be long remembered for his excellent work on the migration and distribution of the birds of Wisconsin.

The Treasurer's report showed an indebtedness of about five hundred dollars, resulting mainly from the publication of the 'Code and Check-List.' 'The Auk,' during the past year, had proved self-sustaining.

The report from the Council included, as usual, nominations for membership, and also a draft of a new Constitution and By-Laws, and a report of its action in relation to the matter of incorporation, both the latter being subjects specially referred to the Council at the last meeting. Only one candidate was nominated for Active Membership, namely, Dr. F. W. Langdon of Cincinnati, Ohio. Owing to pending radical changes in the manner of selecting candidates for Active Membership, it was deemed undesirable by the Council to present other nominations at this meeting. Dr. Langdon's case presented peculiar claims, he having been previously elected at the first meeting of the Union, and prevented by unfortunate circumstances from availing himself of the privilege of membership. Twenty-eight nominations were reported for Associate Membership.

* See Auk, Vol. IV, p. 358.

† See Ibid., p. 174.

The Constitution and By-Laws presented had been drawn up by a Committee of the Council, appointed for the purpose last year,* and had been carefully revised by the Council, and were now recommended to the Union for adoption.

The matter of incorporation had been considered by the Council, and the President had been instructed to appoint a committee, of which he was to be chairman, to secure the incorporation of the Union under the laws of the State of New York.

Following the report from the Council came the election of members, resulting in the election of all of the candidates recommended by the Council. The new Constitution and By-Laws were then considered, and, with slight modifications, adopted as presented.†

An election of officers was then held, under the provisions of the new Constitution and By-Laws, which require seven Councillors instead of five. This, with the vacancy in the Council resulting from Professor Baird's death, required the election of three new members to the Council. The officers of the previous year were all re-elected, but Mr. Cory declined to serve another year as Treasurer, and Mr. William Dutcher was elected to the vacancy. The additional members of the Council are Messrs. Charles B. Cory, D. G. Elliot, and Leonhard Stejneger.

On suggestion of the President a committee (consisting of Dr. George Bird Grinnell, William Dutcher, and George B. Sennett) was appointed to co-operate with a committee of the New York Academy of Sciences in the work of soliciting subscriptions for the erection of a monument to John James Audubon in Trinity Church Cemetery, New York City. The tomb of America's great bird painter and ornithologist has sadly fallen into decay, and is very obscurely marked; it therefore seems especially fitting that the American Ornithologists' Union should take active measures to aid the movement already started to erect a proper monument to this distinguished pioneer in American ornithology.

* See Auk, Vol. IV, p. 57.

† As the new 'Constitution and By-Laws'—adopted finally under the title 'By-Laws and Rules,'—are published, together with the Membership Lists, with the present number of 'The Auk,' no special synopsis of them is required in the present connection.

Under the call for reports of Committees, the chairman of the Committee on the Distribution and Migration of North American Birds (Dr. C. Hart Merriam) made a verbal report, detailing the progress of the work, which is now, as is well known, carried on under the auspices of the United States Department of Agriculture, and largely by means of appropriations made by Congress. The work of gathering data was continued much as heretofore, through means of circulars and schedules, resulting in voluminous returns, which were being elaborated as rapidly as the extent and nature of the work permitted. Economic questions necessarily required much attention, and the gathering of food statistics entered largely into the work. Two large 'Bulletins' were passing through the press, one being a very elaborate report on the English Sparrow, and the other Messrs. Cooke and Widmann's report on the migration and distribution of birds in the Mississippi Valley. The report of the Committee was received as a report of progress, and the Committee was continued.

The Chairman of the Committee on Bird Protection (Mr. George B. Sennett) reported that the Committee was doing all in its power to disseminate information in relation to the subject, the chief obstacle to its work being the ignorance of the public on all matters relating to the utility of birds and the measures necessary for their protection. This ignorance was especially dense among farmers, who were intensely prejudiced against Hawks and Owls, and indifferent to the services rendered by these and many other useful species they were accustomed to regard as enemies and pests. The information the Committee had gathered respecting the food of Birds of Prey showed conclusively that, with two or three exceptions, these species were far more beneficial than harmful, many of them subsisting chiefly upon field mice and other farm pests. In this connection quite an extended account was given of the very excellent work of the Audubon Society. The report was accepted as a report of progress and the Committee continued.

The Committee on Avian Anatomy reported through its Chairman, Dr. Elliott Coues. The report was mainly eulogistic of the labors of his indefatigable colleague, Dr. Shufeldt, and an appeal to the Union for its aid in behalf of securing Dr. Shufeldt's transfer from a frontier post to one of the larger cities near the Atlantic seaboard, within reach of the libraries and museums so indispensable to him in his work.

This ended the first day's session. At the second day's session, under the call for miscellaneous business, the President referred to the Treasurer's statement of the indebtedness of the Union and of the great desirability of providing for its immediate payment. He called attention to the provision made in the By-Laws adopted the previous day for life membership, and stated that he thought he saw in this a speedy way of raising the needed funds. A life membership yielding \$100, five of them would suffice for present needs. Two members had already subscribed for life memberships, and another had been taken conditionally upon five being secured. At this point, Colonel N. S. Goss arose and asked to be recorded for a life membership, and was immediately followed by Dr. J. C. Merrill, who stated that he would also become a life member. This completed the five required to cancel the present indebtedness, the other life members being William Brewster, Charles B. Cory, and Dr. Coues. The President congratulated the Union on this gratifying turn in its financial affairs, which evidently gave great satisfaction to all present.

The remainder of the second day's session was devoted to the reading of scientific papers, this feature of the meeting being appropriately opened by an address on the life and scientific services of our late leader, Professor Spencer F. Baird, prepared by Mr. Robert Ridgway and read, in his absence, by the Secretary.* Other papers which followed are: 'Notes on *Gymnostinops montezumæ*,' by N. S. Goss; 'Cormorant Fishing in Japan,' by P. L. Jouey; 'The Fishing-habits of the White Pelican (*Pelecanus erythrorhynchus*)', by Colonel Goss; 'Occurrence of the Evening Grosbeak in Iowa,' by C. R. Keyes (read by C. F. Batchelder); 'A List of the birds of Fulton County, Ky.,' by L. O. Pindar (read by the Secretary); 'A Bird Wave,' by Phillip Cox (read by M. Chamberlain); 'The Nocturnal Migration of Birds,' by Frank M. Chapman. The Secretary presented some observations made by Mr. William Lloyd, in the arid region of Western Texas, on the distance from water at which certain birds are found. Several of the papers elicited remarks from various members, and Mr. Chapman's paper was discussed at length by Messrs. Brewster, Chapman, Cory, Jeffries, Merriam, and others. At the third day's session

*The address is given in full as the first article of the present number of 'The Auk.'

a long and very interesting paper on 'The Birds of South Greenland', by A. Hagerup, was read by Mr. Chamberlain.

Resolutions of thanks were tendered to the Boston Society of Natural History for the use of its lecture-room as a place of meeting and for many other courtesies extended to the Union; to the Nuttall Ornithological Club for its hospitalities to the members of the A. O. U.; and to Senator Warner Miller for his successful efforts in Congress in behalf of the Division of Economic Ornithology of the Department of Agriculture.

The selection of the place for holding the next meeting, made during the second day, elicited a lively discussion, New York City and Washington being the rival points, the good-natured struggle being finally decided in favor of the latter, the Union voting to hold its next meeting in Washington, on the second Tuesday in November, 1888.

Mr. George L. Toppan, representing the Ridgway Ornithological Club of Chicago, made a few remarks in response to a call from the President, in which he expressed the hope that the Ridgway Club would have the pleasure of welcoming the A. O. U. to Chicago at a not very distant day.

The Fifth Meeting of the American Ornithologists' Union adjourned at 12.30 P. M. of the third day to give members opportunity to make an excursion to Cambridge in the afternoon, for the purpose of examining the ornithological collection of the Museum of Comparative Zoölogy, and the private collection of Mr. William Brewster.

The meeting, all things considered, was one of the most satisfactory thus far held, and also one of the most important. The A. O. U. enters upon the fifth year of its existence free of debt, with its quarterly journal on an apparently sound financial basis, with an elaborate and well-considered system of 'By-laws and Rules' for its government, and with the prospect of soon having legal status as a corporate body. The social features of the Boston meeting, thanks to the foresight of the Nuttall Ornithological Club, will be long and pleasantly remembered.

RECENT LITERATURE.

Coues's 'Key to North American Birds,' New Edition.* —The 'Third Edition' of the 'Key' is a reprint of the second edition, from the same plates, with the addition of a new preface and an 'Appendix' of 30 pages (pp. 865-895) of new matter. A sketch of the general character of the second edition having already been given in 'The Auk' (Vol. I, No. 3, July, 1884, pp. 283, 284), it is necessary to notice in the present connection only the additions to the text now presented. The second edition was a great improvement upon the first, published in 1872, which was not only entirely rewritten but greatly augmented and made practically a new work, there remaining of the old little more than the general framework and plan. This plan was at the time unique — an attempt to apply in a manual of ornithology the analytical key system of botanical manuals. The much fuller definitions of the species and subspecies, with the added terse biographical notes, and better and more numerous illustrations, rendered the second edition much more satisfactory than was the first, which had, however, proved a most successful venture, both for the author and his readers. In the preface to the third edition the author expresses himself as so well satisfied with the second that it seemed "decidedly best to reprint from the same plates, and put what new matter has come to hand in the form of an Appendix." Whether this view of the case will be shared by his patrons, in view of the radical nomenclatural changes made since 1884, may possibly be questioned, yet the policy is doubtless sound, considered from a publisher's standpoint. Dr. Coues, however, cordially accepts and adopts the new nomenclature, and evidently and very properly, looks with much satisfaction upon his honorable share in the work of bringing about the 'new status.' Referring to the objects kept steadily in view by the A. O. U. Committee on the Classification and Nomenclature of North American Birds — namely, the establishment of "certain sound principles or canons of nomenclature applicable to zoölogy at large as well as to ornithology," and the application of "these rules consistently and effectually to the naming of North American birds" — he says: "Others must be left to judge how well or ill these purposes may have been accomplished, but the simple fact is that no sooner had the book [A. O. U. Code and Check-List] appeared than it became the standard

* Key to North American Birds. Containing a concise account of every species of living and fossil bird at present known from the Continent north of the Mexican and United States Boundary, inclusive of Greenland and Lower California, with which are incorporated General Ornithology, an outline of the structure and classification of birds; and Field Ornithology, a manual of collecting, preparing, and preserving birds. The Third Edition, exhibiting the new Nomenclature of the American Ornithologists' Union, and including descriptions of additional species, etc. By Elliott Coues, A.M., M.D., Ph.D. [etc.]. Profusely illustrated. Boston: Estes & Lauriat, 1887. Royal 8vo, pp. x + xxx + 895, 1 col. pl., and 563 woodcuts.

and, indeed, the only recognized Nomenclator in American Ornithology. That which the Committee had stamped with the seal of the Union become the current coin of the realm. . . ."

The nomenclature in the body of the new 'Key' being left unchanged, the adjustment of the old nomenclature to the new is made through the medium of the Appendix, where the two systems of names are arranged in parallel columns, thus not only presenting his readers with the new names, but at the same time affording a convenient means of collating the old and the new. In the same connection some sixty species and subspecies, with descriptions of the same, not included in the body of the work, are interpolated, bringing the subject down to date as seen from the standpoint of the author. This large number is partly due to the inclusion of Lower California within the area covered by the new 'Key,' in accordance with the boundaries of 'North America,' ornithologically considered, adopted in the A. O. U. Check-List, but mainly, of course, to birds added to the fauna since 1884.

In his preface to the new edition (p. iii) Dr. Coues records "an earnest protest, futile though it may be, against the fatal facility with which the system of trinomials lends itself to sad consequences in the hands of immature or inexperienced specialists," fearing that our excellent 'trinominal tool,' and "the whole system of naming we have reared with such care," be brought into disrepute. He, however, disclaims allusion "to anything that has been done"; the warning relates to what may happen in future if "more judicious conservatism than we have enjoyed of late be not brought to bear down hard upon trifling incompetents." "It may be assumed," he adds, "as a safe rule of procedure, that it is useless to divide and subdivide beyond the fair average ability of ornithologists to recognize and verify the results." This, in an abstract sense, is sound advice, much in line with sentiments and admonitions the present writer has given voice to on several occasions. In the sentence which follows the one last quoted (p. iv) we can hardly suppose the author intends to imply that when specimens of a named variety require to be 'compared with the types' for their satisfactory identification that such 'varieties' should be always ignored. He must know that words oftentimes fail to express differences which to the eye are not only readily appreciable, but appeal to us as of so tangible a character as to require nomenclatural recognition, presenting a fact to which it would be not only a great convenience to have a handle, but one of which our science must in some way take cognizance. Again, how often descriptions are faulty, falling so far short of what they should be as in many cases to prove practically valueless. It is not to be denied, however, that the splitting process may be, and in some cases perhaps has been, carried too far, and this, too, by those who would hardly fall into the category of "trifling incompetents." Just how far division may be profitably carried, or is even necessary, is a hard question to decide, and one which taxes alike conservatives and radicals. In the case of wide-ranging species, diffused over an area of greatly varying climatic and other physical

conditions, a common stock often runs into numerous well-marked offshoots, the extremities of which differ much from each other, and which, in their extreme phases, present no difficulties of recognition or characterization, but which insensibly merge together at certain points within the general habitat. These various forms are obviously the result of differences in the environment—incipient species, instructive facts, links in the chain of evolution, demanding a means of expression to which the trinomial system is readily subservient. Each well-marked physical region of a continent has generally a more or less well-marked form, which it seems profitable to recognize by name, the degree of differentiation of course varying with the plasticity of the species. It at present seems sufficient to recognize such forms as are correlated with certain more or less definite or natural geographical and climatal areas.

These remarks are suggested by the large number of species and subspecies of late described from the southern border of the United States and the contiguous region southward. A conservative person, judging these forms by the descriptions, feels naturally some bias against them, and is inclined to consider them as cases of too fine splitting, but later, when confronted by the evidence afforded by the actual specimens, is obliged to admit that the alleged differences are not imaginary, and that we have, in short, really a new 'fact,' requiring a 'handle.' This is an experience to which even the writer of this notice is willing to confess. In some instances the 'types' of newly described forms have been in some of our leading collections for a generation, awaiting the accumulation of material sufficient to reveal the significance of certain differences, perhaps long before recognized but not understood. The true explanation of the recent increase of new forms is in part the accumulation of material from hitherto imperfectly explored fields, or from localities not before examined, and the careful collation of the spoils thus gathered. The work of Mr. Sennett in Texas is strikingly in point, where novelties never dreamed of are rapidly coming to light, and quite revolutionizing our notions of the Texan ornith; while Mexico comes into view as almost an ornithological El Dorado.

In the Appendix to the new 'Key' Dr. Coues perhaps intends to enforce the lesson of his preface, as well as to record his dissent (see p. iii of preface) respecting the status of certain forms admitted to the A. O. U. Check List, and as his judgment on forms since described. The revision thus made, we are compelled to say, strikes us as rather off-hand, and as made in the library, rather than with specimens of the forms in question actually under examination,—a rather unsafe proceeding in the present state of the subject, and one tending to inconsistency in results. About twenty species included in the 'Check-List' are not recognized in the 'Key,' three or four of which appear to have been rejected as being doubtfully North American, and the rest as not entitled to recognition. On the other hand, about ten are included which the A. O. U. Committee deemed it best to omit, and about seventeen others which they relegated to the 'Hypothetical List,' with which reference we presume Dr. Coues

still concurs, although they of course appear (necessarily) in the comparative lists of the Appendix.

The 'Key' is still entitled to the high favor it has hitherto received, and will prove, as it ever has, a work of the greatest utility. It has, of course, its short-comings, but they detract little from its usefulness. Some of its statements about the nesting-habits of certain species or groups of species are a little too sweeping, and the descriptions of the eggs, as to number and color, not always above criticism, while there are a few lapses of a graver sort. When the fourth edition is called for, as it doubtless ere long will be, the author may then find it expedient to once more recast and perfect a work which has not only proved a great boon to the ornithological public, but has had unquestionably a marked influence upon the progress of ornithology, and done more than any other to make the subject popular and comprehensible to the general reader. — J. A. A.

Townsend's Field-notes on the Birds of Northern California.*— Mr. Townsend's 'Field-notes' were based on observations made in the counties of Siskiyou, Shasta, Tehama, and Lassen, April 1, 1883, to July 15, 1884, and in Humboldt County, Nov. 15, to Dec. 17, 1885. To make the list of birds as complete as possible for that portion of California north of the fortieth parallel, he has added to the two hundred observed by himself some sixty additional species made known by others as inhabitants of the region, making 261 in all. The list is copiously annotated and contains interesting biographical matter. His account of the nest and eggs of the Black-throated Gray Warbler (*Dendroica nigrescens*) is especially noteworthy as the first for the species. The bird portion of the paper closes with a table illustrating the vertical range of birds of Northern California, modelled after a similar one in 'The Auk' (Vol. II, 1885, p. 11) by Mr. F. M. Drew on the birds of Colorado.

The 'Field-notes' on the mammals and reptiles are equally full and interesting, but of course call for no special remark in the present connection. A useful sketch-map of the region accompanies the paper, and several pages of introductory matter describes the topographical features of the country under notice. — J. A. A.

Shufeldt's Contributions to Avisection.†— Dr. Shufeldt continues his admirable avisections. His latest article reviews some of the taxonomically important musculatures. These are, namely, five pectorimyon;‡

*Field-notes on the Mammals, Birds, and Reptiles of Northern California. By Charles H. Townsend. Proc. U. S. Nat. Mus., 1887, pp. 159-241. (Birds, pp. 190-237.)

†A Review of the Muscles Used in the Classification of Birds. By R. W. Shufeldt, M. D., C. M. Z. S., Captain Medical Corps, U. S. Army, etc. Journ. Compar. Med. and Surg., Oct. 1887. 24 pp.

‡Myon, any individual unit of musculature; what Dr. Coues formerly called a "muscular integer." — Pectorimyon, any myon of the pectoral arch or shoulder girdle proper. — Pelvimyon, any myon of the pelvic arch or hip girdle.

five *pelvimyons*; the so-called "obturator internus"; several *syrimomya*; and the tendons of *profundiplantar mya*. The five *pectorimya* treated are: — 1, *tensor patagii longus*; 2, *tensor patagii brevis*; 3, *dermotensor patagii*; 4, *bicipital slip to the patagium*; and 5, *expansor secundariorum*.* The five *pelvimya* discussed are the *ambiens* and those other four already handled with much effect by Garrod and others under their respective symbols, A, B, X, Y.† If the author is correct in identifying the muscle he called "obturator internus" with the *myon* of that name in *hominisecution*, it is the *obturiformis* of Coues and Shute,‡ whose origin, whether oval or triangular, is discussed in its possible bearing on classification. The paper concludes with remarks well worthy of attention, on the *profundiplantar tendons*. It is quite fully illustrated with thirteen figures, in part original. — E. C.

A New Ornithichnite.§ — Prof. F. H. Snow describes and figures a fossil, apparently that of a true bird, found in August, 1885, in Ellsworth Co., Kansas, in an excavation 44 feet deep in the Dakota Sandstone, on a geologic horizon about 200 feet below the upper level of the Dakota rocks. "The impression appears to have been made by the left foot of some bird with elevated hind toe just reaching the ground at its extremity, as in the modern Snipes and other Wading-birds, or in the family of Sea Gulls and Terns." The fossil is a small one, only two inches in total length. The object is not named, but Prof. Snow compares it with such a track as the foot of an *Ichthyornis* might have made." The discovery of this avian footprint. . . considerably lowers the geological horizon of Kansas birds," which were not before known from strata below the Niobrara group, or highest of the Cretaceous rocks, beneath which the Dakota "rests unconformably upon the Permian-Carboniferous, with apparently an entire exclusion of the Triassic and Jurassic formations." — E. C.

Clark's 'Birds of Amherst.'|| — This annotated list of the birds occurring about Amherst seems to have been written not as an exhaustive contribution to faunal literature, but rather for the enlightenment of the farmers

*The progress of improvement in myological terminology makes it desirable to rename some of these *mya*. They may be called: 1, *longitensor patagii*; 2, *brevitensor patagii*; 3, *dermotensor patagii* (of Shufeldt); 4, *bicipitensor patagii*; and 5, *secund-expansor*.

†A = *femorocaudal*; B = "accessory *femorocaudal*," which is now named *accessi-caudal*; X = *semitendinosus*; Y = "accessory *semitendinosus*" which is now called *accessitendinosus*.

‡See N. Y. Med. Record, July 30, 1887, p. 125.

§On the discovery of a fossil bird-track in the Dakota Sandstone. Trans. Kansas Acad. Sci., Vol. X.

||The | *Birds of Amherst* | and Vicinity, | including nearly the whole of | Hampshire County, Mass. | — | Herbert L. Clark, | with an Introduction by | Prof. C. H. Fernald Ph. D. | — | Amherst, Mass.: | J. E. Williams, Publisher. | 1887. 8vo. pp. 55.

and the community at large. It begins with an artificial key to the species, and further brief descriptions precede the annotations upon each species. The work is unusually, and for the ornithologist rather inconveniently, arranged, being divided into three parts: "birds of regular and certain appearance in Amherst at the proper seasons," "birds of irregular and uncertain appearance in Amherst: or which may be common in other parts of the County while rare or accidental in Amherst," "birds extremely rare or accidental in the County." One hundred and seventy-seven species are enumerated, four-fifths of them land-birds, some of the less common ones being given on the authority of E. O. Damon, W. A. Stearns and others. The annotations include not only notes upon the abundance, seasons of occurrence, and often the dates of arrival in spring, of each species, but contain also brief statements of habits. The pamphlet is well printed, with but few typographical errors.

It is to be hoped that the author will continue his observations, and after several years more of field work will give us a further report upon the fauna of his neighborhood. Probably he will be able to record the occurrence of some species not yet noted, and may find reason to change a few of his statements as to habits and abundance. — C. F. B.

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GENERAL NOTES.

Larus atricilla at Springfield, Mass.—Yesterday I captured near Springfield a Laughing Gull (*Larus atricilla*). This fact may not be worthy of note, but not having seen or heard of one here before, I conclude it was a rare bird to find so far in the interior. The Great Black-backed, Herring, and Ring-billed Gulls are often here.—ROBERT O. MORRIS, *Springfield, Mass., Oct. 2, 1887.*

The Yellow-nosed Albatross (*Thalassogeron culminatus*) in the Gulf of St. Lawrence.—During a recent visit to the Museum of Laval University,

Quebec, I was shown by the Curator, Mr. C. E. Dionne, the skin of an Albatross which, upon examination, proved to be of this species. Mr. Dionne assured me that he obtained the skin in September, 1885, from a fisherman who said he had captured the bird a few days previously in the Gulf of St. Lawrence. The skin had been preserved in salt, and when it reached the Museum was soft and quite fresh. This is the first record of the occurrence of this species in the Atlantic, its usual habitat being the Indian and South Pacific Oceans.—MONTAGUE CHAMBERLAIN, *St. John, N. B.*

Cory's Shearwater at Newport, R. I.—In the Auk for January, 1887, an account was given by Prof. Baird of the occurrence of great numbers of Jaegers and Cory's Shearwaters, found feeding upon the young herring, which, towards the end of September, 1886, abounded from Point Judith to Vineyard Sound. On the 30th of the same month, I received from J. Glynn, Jr., of Newport, a Shearwater which appeared to me to be *Puffinus borealis*, and Mr. Cory has since kindly confirmed the identification. This furnishes some evidence to show that the flight of these birds extended as far west as the mouth of Narragansett Bay.—WILLIAM C. RIVES, JR., M. D., *Newport, R. I.*

The Black Duck in Chihuahua.—In April, 1879, I was with Col. A. K. Morrow, then Major in the 9th Cavalry, and a small detachment of cavalry and Indian scouts scouting in northwestern Chihuahua, Mexico. While in camp at the Laguna Palomas, an alkali lake fed by warm springs, just inside the Mexican line, I observed, among numerous other ducks of different varieties, a flock of six or eight birds that I thought were Black Ducks. After trying in vain to get a shot with my shotgun, Colonel Morrow succeeded in killing one with a cavalry carbine. As I suspected, it turned out to be a true Black Duck; a variety I had been familiar with since my boyhood on Long Island Sound. The Laguna Palomas is in about longitude $107^{\circ} 30'$ W. and about three miles south of the line between New and Old Mexico.—R. T. EMMET, *Ft. Niobrara, Nebraska.*

[The species here referred to is probably *Anas fulvigula*, which, so far as now known, is the form of Dusky Duck occurring in Texas and adjoining parts of Mexico.—ED.]

Rallus longirostris crepitans breeding on the Coast of Louisiana.—Mr. Ridgway, in his 'Manual of North American Birds,' gives the habitat of this species as the "salt water marshes of Atlantic coast, north regularly to Long Island, casually to Massachusetts."

It gives me pleasure to be able to extend its range to the Gulf coast. While at Grand Isle, which borders the Gulf of Mexico at the entrance of Barataria Bay, Louisiana, in June, 1886, I secured an old bird and two young, which, when compared with specimens of *R. l. saturatus* in the National Museum, proved not to be that variety, but the true Eastern bird, variety *crepitans*.—A. K. FISHER, M. D., *Washington, D. C.*

***Ionornis martinica* in Arizona.**—About October 20, 1887, a Chinaman caught a female Purple Gallinule in his vegetable garden on the Santa Cruz bottom opposite Tucson. He gave it to a Mexican boy from whom I purchased it ten days later. The bird was in good plumage, but its wings and tail were somewhat cage-worn. Length, 11.50 inches; extent, 21; wing, 6.80; tail, 2.72; tarsus, 2.25. This, so far as I can learn, is the first of its kind ever taken in Arizona.—HERBERT BROWN, *Tucson, Arizona*.

Habits of the Purple Gallinule (*Ionornis martinica*).—While spending the spring and summer of 1887 at Yemassee, S. C., I found the Purple Gallinule to be the most common and characteristic of the birds breeding there. The locality where I found them was an old rice plantation of about six or seven hundred acres. This abandoned rice plantation is used as a reservoir, or, in local parlance, a 'backwater.' It is kept filled with water, to flow the rice of adjoining fields, and is usually covered with water to the depth of three to four feet. The whole 'backwater' is overgrown with rushes, the broad-leafed pond lily (*Nymphaea odorata*) and the Nelumbium (*Cyamus flavicomus*). I found the Gallinules very common—there must have been at least five hundred pairs of birds. It was a very beautiful sight to see the graceful creatures walking over the large leaves of the pond lily, every now and then flirting their tails, or holding their wings over their heads, as they walked from one leaf to another. When flying, chasing one another, the legs are always hanging down, and the birds are cackling the whole time while engaged in this sport. They have several very peculiar call-notes, one which is very guttural, is to be heard incessantly. They are exceedingly tame—one can almost step on them before they take wing. If wounded they dive immediately, and remain under water for fully five minutes at a time, and it is folly to waste time in following them up, as they rise with only the point of the bill out of water. The soft parts in life are as follows:—Crown shield, azure blue, legs bright yellow, the tip of bill greenish yellow, and the middle of bill bright red.

The nests are commenced about May 5. They are built in rushes, invariably over water, and are made of half decayed rushes. The nest is substantially built, and well secured to the rushes which grow in the water. The birds have regular trodden paths leading to their nests, and, strange to say, there are always three or four nests in all stages of completion near each nest which contains eggs. The eggs are from four to nine, almost invariably six. They measure about 1.60×1.15 inches, and are pale cream color or yellowish, spotted with brown or purplish. They vary in size and markings; some of the eggs I collected are larger than typical specimens of the Florida Gallinule, and some as small as large specimens of the Virginia Rail. I never saw a Gallinule sitting—day or night, rain or shine—and I really believe the eggs are hatched by the decomposition of the materials which compose the nest. The young can

easily be raised, and become perfectly tame. The breeding season is a long one, as I had a very young bird in the downy stage sent me alive on September 17. Its appearance is as follows: Upperparts glossy black, the lower parts sooty, the throat, cheeks, and top of head with silvery white hairs. The base of bill is yellowish, the lower mandible, and part of upper jet black with a white spot, which rises to a point on the tip of upper mandible; this white spot resembles 'white lead.' The wings are also covered with silvery hairs.—ARTHUR T. WAYNE, *Charleston, S. C.*

Unexpected Occurrence of Certain Shore Birds in Texas in Midsummer and in Breeding Plumage.—

Macrorhamphus griseus. DOWITCHER.—June 11, two adults, ♂ and ♀, in full breeding plumage, and two immature birds in the act of moulting or changing from winter to summer dress.

Macropalama himantopus. STILT SANDPIPER.—July 3, one adult female in breeding plumage.

Tringa canutus. KNOT.—July 1, ♀; July 3, ♂; July 10, ♀; all adults in full breeding plumage.

Totanus melanoleucus. GREATER YELLOW-LEGS.—June 13, ♂; July 3, ♀; both adults in full breeding plumage.

Charadrius squatarola. BLACK-BELLIED PLOVER.—July 1, one adult male in nearly full breeding dress. On May 12, 1882, I took at same place an adult male in full breeding plumage.

All of the above were taken at Corpus Christi, Texas, in 1887, by my collector. *Aegialitis nivosa*, Snowy Plover, breeds there and is not uncommon; large series of adults and young were secured. Five males, six females, and one immature bird changing to breeding plumage, of *Arenaria interpres*, Turnstone, were sent me, and any number could be taken in July. The adults were in as fine dress as if taken in Labrador. This confirms the observations of Dr. J. C. Merrill and myself during the last ten years. No eggs were secured, but that the bird breeds there can hardly admit of a doubt.—GEO. B. SENNETT, *Am. Mus. Nat. Hist., New York City.*

The European Kestrel in Massachusetts.—A female example of the European Kestrel (*Falco tinnunculus* Linn.) was shot at Strawberry Hill, near Nantucket, Mass. on Sept. 29, 1887. The bird was killed by a man who was hunting for Plover at the time, and was sold with other birds to Mr. C. I. Goodale, 93 Sudbury St., Boston, where I had the pleasure of examining the specimen in the flesh shortly after it was killed. This is, I believe, the first record of its occurrence in North America. The skin is now in my cabinet.—CHARLES B. CORY, *Boston, Mass.*

Ulula cinerea in Steuben, Co., New York.—I am pleased to report the occurrence in this locality of the Great Gray Owl; a female in fine plumage was shot some five or six miles southwest of this village on the 10th of last February by a farmer who claimed it was trying to catch his

chickens. It was so tame he thought he could have easily killed it with a club. The bird was thin, and from the appearance of its digestive organs it had fasted a long time.—A. H. WOOD, *Painted Post, Steuben Co., N. Y.*

Megascops asio floridanus in Louisiana.—While in New Orleans, in June, 1886, Mr. Gustave Kohn kindly gave me a number of birds and reptiles from his collection. Among them was a Florida Screech Owl (*Megascops asio floridanus*), several specimens of which he had secured in the vicinity of New Orleans. I believe this bird has not before been recorded from Louisiana.—A. K. FISHER, M. D., *Washington, D. C.*

Ceophloeus pileatus in Franklin County, Massachusetts.—During the month of August, 1886, two Pileated Woodpeckers were shot at Ashfield, Franklin Co., Mass.; and on October 7 of the same year a third, which I have, was shot. It is a male, but in not very good plumage, as it was moulting at the time it was shot.—RICHARD NORTON, *Cambridge, Mass.*

Breeding of the Prairie Horned Lark in Eastern New York—A Correction.—In the Bulletin of the Nuttall Ornithological Club, Vol. VI, p. 177, I noted the capture, in April, 1881, of two young Horned Larks, just able to fly, and two adults, male and female, at Green Island, N. Y., and called them, specifically, "*Eremophila alpestris*"—not knowing their proper race name.

Mr. William Brewster lately saw the mounted skins of these birds and informed me that they are of the variety *Otocoris alpestris praticola*, described and named, in 1884, by Mr. H. W. Henshaw, in 'The Auk,' Vol. I, pp. 254-268.

I have given very little attention to the Horned Larks of this vicinity, but know of specimens of the variety *praticola* taken within five miles of Troy, N. Y., February 22, 1883, and in March and October, 1887. A larger and darker colored variety, probably *alpestris* proper, visits this locality in winter; and I have a specimen of that race captured here about April 25, 1845.—AUSTIN F. PARK, *Troy, N. Y.*

The Prairie Horned Lark (*Otocoris alpestris praticola*) on the Coast of Massachusetts.—Looking over a large series of Horned Larks in my collection I lately found a pair of perfectly typical *O. a. praticola* labelled "Revere Beach, Massachusetts, February 28, 1883." Under this date my journal has the following entry: "I shot these birds [Nos. 7925, 7926] with another, a female similar to No. 7926, near the beach in a field where the ground was partly bare of snow. There were only three of them in all. The testes of the male were of large size but the ovaries of the females not correspondingly developed."

The female "similar to No. 7926" was badly shot, if I remember right, and not suspecting at the time (fully a year, it should be noted, before the appearance of Mr. Henshaw's admirable paper on the genus *Otocoris*) that it was anything more than a small dark specimen of *O. alpestris*, I doubt-

less threw it away. The fact that *praticola* has been found breeding within less than twenty-five miles of the western boundary of Massachusetts,* taken in connection with that of the captures above recorded, makes it seem not improbable that the form in question may occur regularly, if rarely, in Eastern Massachusetts during the migrations, and perhaps as a summer resident in the extreme western portions of the State.—WILLIAM BREWSTER, *Cambridge, Mass.*

Occurrence of the Florida Blue Jay (*Cyanocitta cristata florincola*) in Southwestern Texas.—On the eleventh of March, 1887, while collecting at Leon Springs, Texas, I came up with a party of four or five Blue Jays in a grove of hackberry and live oak trees. Supposing them to be the ordinary eastern bird, only one of them was shot, and although they were seen several times at San Antonio, no other specimens were secured. Upon comparing my bird with typical examples of *Cyanocitta cristata florincola* in the United States National Museum, I find it to agree perfectly with them. The principal characters that distinguish the Florida bird from the specific form consist in the smaller size of the former and the much less amount of white on the secondaries and the two outer rectrices.

Mr. Ridgway, who first suggested that my specimen was *florincola* entirely concurs with me in this determination.

This Jay is evidently a rare bird in Southwestern Texas, for the only authority I can find for its occurrence there is in Dresser's classical paper, where he states that he "was told by several hunters that the Blue Jay is found near San Antonio." Leon Springs is in Bexar County, about eighteen or twenty miles northwest of San Antonio. — CHARLES WICKLIFFE BECKHAM, *Washington, D. C.*

Abnormal Plumage of *Xanthocephalus xanthocephalus*.—I shot, October 21, 1887, in the valley of Mud Creek, thirty miles southeast of Las Animas, Bent Co., Colorado, a female *X. xanthocephalus*. It could fly well but was quite young. The barrels of most of the quills of wings and tail were dark and full of liquid. The plumage was more loose and ragged than is usual in birds that can fly. It differs from all young females I have seen as follows :—

Lesser wing-coverts whitish; scattering white and whitish feathers in hind neck, interscapulars, back, upper tail-coverts, breast, belly, crissum and flank. Feathers of the breast long and rounded — looking like cotton strings. One secondary in right wing whitish on both webs for one inch; middle tail-feathers the same for half their length. Right outer tail-feather pure white. One downy, round feather one and a half inches long, starting from below oil gland. It was with two other young birds. The date is much later than I have ever seen these birds in Colorado.—P. M. THORNE, CAPT. 22d INFY., *Fort Lyon, Colorado.*

* See Mr. Park's note above.

Notice of the Presence of *Quiscalus quiscula æneus* in Upper South Carolina.—I have lately given some attention to the capture of Crow Blackbirds, having in view especially the discovery of subspecies *æneus*. My efforts in this particular direction, however, were unsuccessful until Nov. 5, 1887, when I obtained a single male from a small flock near Chester C. H. Nov. 12, a second male was taken in the same locality from a little band of half-a-dozen. On the 21st three additional males and four females, together with two examples of the typical form, were secured from an immense assemblage in the neighborhood of Chestnut Grove in the northern part of Chester County. The continued recurrence of birds chiefly peculiar to the West accentuates anew the necessity of a thorough overhauling of the ornithology of this region.—LEVERETT M. LOOMIS, Chester, S. C.

***Quiscalus quiscula aglæus* in Louisiana.**—In the October, 1887, Auk (p. 303) Mr. Beckham states that the Bronzed Grackle (*Quiscalus quiscula æneus*) was the form found at Bayou Sara, Louisiana. In the Journal of the Cincinnati Society of Natural History, for July, 1881 (p. 150) Dr. Langdon reports "a few specimens, evidently residents, shot for the purpose of identification, prove to be of the *purpureus* form." In the early summer of 1886, at New Orleans and vicinity, the Florida Grackle (*Quiscalus quiscula aglæus*) was the only one of the smaller Grackles which I secured or observed. With the exception of one Bronzed Grackle, taken in winter, all the specimens in the collection of Mr. Gustave Kohn, were of this form. From this it will be seen that the three varieties have been found in Louisiana in the breeding season. Bayou Sara and New Orleans are about eighty miles apart, by air line, though more than twice that distance following the course of the river. It will be interesting to discover just where between these two points the three varieties meet.—A. K. FISHER, M. D., Washington, D. C.

Breeding of the Evening Grosbeak (*Coccothraustes vespertina*) in the White Mountains of Arizona.—In 'The Auk' (Vol. IV. No. 3, p. 256, 257) I observed two notices of the occurrence of the Evening Grosbeak; one from Toronto, Canada, the other from Hickman, Kentucky. In the latter case Mr. J. A. Allen is quoted as stating that "its occurrence anywhere south of the Great Lakes is rare." It may, therefore, be of interest to readers of "The Auk" to know of an instance of this bird having bred as far southwest as the head-waters of the Little Colorado River in the White Mountains of Arizona.

On June 5, 1884, while looking out for anything of ornithological interest in a thickly wooded cañon some fifteen miles west of the little town of Springerville, Apache County, Arizona, my attention was attracted by a bird which I did not know, flying off its nest in the top of a thick willow bush. Having climbed up to the nest and ascertained that it contained three eggs I returned to the ranch. Next day I visited the cañon with my shotgun, and finding that the number of eggs in the nest had not in-

creased, concealed myself close by, and after a long wait succeeded in procuring the female as she flew from the nest. At that time I knew so little about American birds or their eggs that I took no eggs except when I could authenticate them by procuring the female bird.

The nest was a comparatively slight structure, rather flat in shape, composed of small sticks and roots, lined with finer portions of the latter. The eggs, three in number, were of a clear, greenish ground color, blotched with pale brown. They were fresh. The nest was placed about fifteen feet from the ground in the extreme top of a thick willow bush. The slight cañon, with a few willow bushes in its centre bordering a small stream, lies in the midst of very dense pine timber at an altitude of about 7000 feet, as far as I can judge.

I mentioned the fact of my having taken the nest of the Evening Grosbeak to my friend, Mr. E. W. Nelson, but at first he was decidedly sceptical on the subject. On November 5, 1885, however, while staying at Mr. Nelson's ranch, eight miles southwest of Springerville, and during a slight snowstorm, I saw a second specimen of this species among a large number of Mexican Crossbills (*Loxia curvirostra stricklandi*) but failed to kill it. Next day (Nov. 6), while riding near the same place with Mr. Nelson, we came upon three Evening Grosbeaks, and after several shots he succeeded in killing a fine male with a charge of buckshot! These are the only occasions that I have known of this bird being seen anywhere around here, but ornithological observers here are few and far between.—JOHN SWINBURNE, *Springerville, Arizona*.

[Mr. Swinburne is probably the first ornithologist who has had the good fortune to find the nest of this species, although Mr. W. E. Bryant's later discovery has already been recorded.*—Ed.]

Occurrence of *Coccothraustes vespertina* in Iowa.—Among other visitors from the north, during the winter of 1886-87, numbers of Evening Grosbeaks appeared in this neighborhood. About the middle of December several were observed a short distance north of the city, but it was not until the first of February that they began to appear in the principal streets. When first noticed in the town, there was a flock of twenty-five or more feeding upon the samaræ which were still attached to the branches of the box elders. The kernels of the keys were quickly and adroitly removed and the refuse allowed to fall upon the snow beneath, which after a short time was thickly strewn with the remains of the feast. February 23 a flock of over one hundred suddenly appeared on the University campus, and after remaining an hour or more, departed. From this date until April 30, nearly ten weeks, it was their custom to visit the campus early in the morning and remain until noon, when they would fly away and spend the remainder of the day elsewhere. During their stay the food of these birds consisted chiefly of the samaræ of the box elders and sugar maples, the young leaf buds of various trees, seeds, and

* Bull. Cal. Acad. Sci. Vol. II, 1887.

grain; to obtain the latter, the whole flock would often alight on the ground and eagerly devour the scattered grain. As spring advanced they were usually seen, especially early in the morning, in the top of some tree, singing or chattering noisily, thus attracting the attention of nearly every passer-by. Their loud, clear, rather harsh, piping notes, uttered in concert, reminded one forcibly of the familiar chorus of a flock of Rusty Blackbirds in the spring, and have also been likened to the shrill piping arising from some frog pond on a quiet summer evening. In Iowa, the Evening Grosbeak may be regarded as a rare and erratic winter visitor, though its appearance is perhaps most regular in the northern portions of the State. It arrives from the north about the middle of November and remains until May. Prior to last winter it has been observed in the vicinity of Iowa City but once—in February, 1884. Correspondents have also reported this species from Charles City, in March, 1879; Grinnell, December and April, and Burlington in the southeastern part of the State.—C. R. KEYES, *Iowa City, Iowa*.

Loxia curvirostra minor again at Yemassee, S. C.—On November 20, 1887, two Red Crossbills were seen at Yemassee, S. C., by my collector who shot large numbers in April for me. — ARTHUR T. WAYNE, *Charleston, S. C.*

A Philadelphia Vireo and a Cobweb.—On September 13, 1886, while collecting in a thicket near Bardstown, Kentucky, my companion, a small boy, called my attention to the peculiar actions of a bird eight or ten paces in advance of us. It proved to be a Philadelphia Vireo (*Vireo philadelphica*) suspended by the tip of its right wing from a twig at a distance of three or four feet from the ground, violently struggling to free itself. Flying above, within a few feet of it, was another individual of the same species, an apparently interested and distressed witness of the strange performance. Both birds were shot, and upon examination I discovered that the first one had become entangled in a sticky, cobwebby substance that was found to be quite common during that season in the locality mentioned. The end of the wing was completely 'gummed up' with the viscous filaments, and the struggles of the captive had twisted the web into a slender and elastic but strong cord, the other end of which was attached to the twig. The webs in question I found only in thickets, and had been much annoyed by often running against them and getting the glutinous stuff on my face and hands. It is doubtless produced by some spider, but I have never recognized the species. However, I think it improbable that the wily Arachnid deliberately attempts the capture of such large game, and in this particular instance it was doubtless as much surprised as the cockney sportsman in 'Punch,' who fired at a hare and killed a calf.—CHARLES WICKLIFFE BECKHAM, *Washington, D. C.*

Helminthophila leucobronchialis in Pennsylvania.—A specimen of this bird was taken, August 31, 1887, in the central part of Chester Co.,

Penn., on the edge of a dense swamp. It differs from the type in being more washed with yellow below, and olive above. Dr. Fisher (to whom the bird was sent for identification) writes that it closely resembles his specimen from Englewood, N. J. (See Auk, IV, p. 348).—WITMER STONE, *Germantown, Pa.*

The Yellow-breasted Chat Breeding in Malden, Mass.—On June 2, 1887, while exploring a large tract of wooded swamp in the eastern part of Malden, I was so fortunate as to discover a nest of the Yellow-breasted Chat (*Icteria virens*). The bird was sitting when I approached the nest which was almost completely concealed by the thickly-clustering leaves of a dense, stunted witch-hazel bush growing in a partially cleared tract of swamp. She sat very close, and made little complaint when she flew. The nest held five eggs, the full complement, which I found to have been incubated a few days. I visited the nest several times, nearly always finding both parent birds near it. A brood of three was successfully reared, and left the nest on June 19. The nest is now in my possession. It was built three and a half feet from the ground, and is very thick-walled and deep. On June 29 and 30 I saw a Chat that might have been the male of this pair. On both occasions he was in a dense thicket fully a mile from the nest.—H. P. JOHNSON, *Everett, Mass.*

***Sylvania mitrata* at Germantown, Pennsylvania, in November.**—On November 19, 1887, Mr. Herbert Brown, of Germantown, presented me with a Warbler that he had just shot, and which proved to be a Hooded Warbler (*Sylvania mitrata*) in immature plumage. The bird was taken in a cabbage patch where it was apparently feeding on insects.—WITMER STONE, *Germantown, Pa.*

On the Nesting of Palmer's Thrasher.—In 'The Auk,' Vol. IV, No. 2, Col. N. S. Goss asks: "What constitutes a full set of eggs?" In reply I offer no suggestions, but pass my observations, which were carefully and conscientiously made, to the more mature judgment of others.

Among the birds most common on the cactus-covered plains of Arizona, is Palmer's Thrasher (*H. c. palmeri*). I particularly speak of this bird because of my long familiarity with it. From observations made in 1885 and 1886 I was led to believe that three eggs constituted a full set, but my oölogical notes of 1887 on this particular point are much at variance with those of the two preceding years.

March 6, 1885, I found a nest of this bird containing four young sufficiently feathered to fly. I secured several nests containing eggs—generally three—but four was no uncommon number. I also noted other nests containing a like number of young, but none of the latter so far advanced as the ones first mentioned. By the 13th nesting was well under way, not only with the *palmeri*, but also with the Bendire's Thrasher (*H. bendirei*) and Cactus Wren (*C. brunneicapillus*). I cite these additional cases as proof of the early nesting of birds that year. Throughout the next several

months I had occasion to examine many nests of the *palmeri*, nearly always with the same result. Two eggs I considered an imperfect set, and as such left them undisturbed, unless debarred by distance from returning for them when the set was completed. Those that were taken were almost invariably fresh, while sets of three and four were frequently more or less incubated. Towards the latter part of May I was at the Quijotoa, some eighty or ninety miles southwest of Tucson. In that vicinity Palmer's Thrashers were exceedingly abundant. I had there an opportunity to examine many nests, and, to my surprise, they contained but two eggs each. This, however, I attributed to the fact that the eggs in question were, as I supposed, the second or third broods of the season.

In 1886 I was early in the field, and although nests had apparently been completed for several weeks past I did not find an egg of a *palmeri* till February 28th. On that day I took two nests, each containing three eggs. March 28 I was again out, and took a nest of four. April 18, another nest containing three. From various causes this practically ended my observations for the year.

In the spring of the present year (1887), for some cause unknown to me, the nesting season opened unusually late, although as in the preceding year some nests had apparently been ready for weeks. On March 20 I took three nests of the *palmeri*, each containing two slightly incubated eggs. April 10 I examined eleven nests of this same bird, seven of which contained two young each, one, one young, two, two eggs each, and one, three eggs. April 17 I examined seven more nests; three contained two young each, three, two eggs each, and the other, one egg. April 24 I examined three nests, of which two had two eggs, and one, one egg.

May 15 I took two nests, one of which contained two eggs and the other had four. The latter were unusually light in color and much undersized. May 16 a boy brought me a nest containing three eggs which he assured me were all of the same set; but this is doubtful, as one egg was larger than the other two and pinkish in color. All were much incubated. May 20 I examined six nests, four of which contained two eggs each, one three, and one one. May 21 I examined five nests, four of which contained three eggs each, the other two eggs. May 24 I examined six nests, two of which contained three eggs, two, two eggs each, and two, one egg each.

June 4 I took one nest containing two eggs. June 14 one nest with two eggs. June 19 one nest with three eggs. Beyond this I could give them no attention, but I have certain knowledge that they continued nesting late into July.

If the numerical difference here noted was due to climatic changes, why were not the Bendire's Thrashers affected likewise? Both occupy the same locality and have a similarity of habits. The Bendire's nested later than the Palmer's, as usual. It was April 10 when I noted the first eggs of the Bendire's Thrasher. That was a month, all but three days, later than I found them in 1885. During the past season I examined eighteen nests of this bird, eight of which contained three eggs each, seven contained two eggs each, two contained one egg each, and one nest contained

four. This enumeration does not include nests found containing young, several of which I examined, but in no one instance did I see less than two. There is no difference, on the average, in the size of sets between the years 1885 and 1887.

The winter and spring of 1884-85 were unusually cold. Ice an eighth of an inch thick formed repeatedly in the valley, and the mountains were as often snow-capped. The winter and spring of 1885-86 were very mild, but more especially were those of 1886-87. Unfortunately I cannot give the temperature, but the appended table shows the extent of the rainfall:—

Year.	Jan.	Feb.	March.	April.	May.	June.
1885	0.00	0.42	0.40	0.00	0.23	0.13
1886	1.61	0.35	0.87	0.06	0.00	0.00
1887	0.00	0.85	0.00	0.38	0.00	0.26

Dried grass usually is a staple article with Palmer's Thrashers for nest lining. A nest last year lined with feathers and grass was the first deviation I had ever seen from it, but this year nothing seemed to go amiss for that purpose. Those nesting in the vicinity of a slaughter-house frequently economized on grass by using about one half pig bristles. In a nest of this build I also saw a piece of baling rope that had been skilfully worked in. I saw several that were lined with grass and horsehair, also several that were lined with grass and feathers. The *H. bendirei* by no means confine themselves to grass for nest lining, as is abundantly evidenced by my oölogical notes.—HERBERT BROWN, *Tucson, Arizona.*

Feeding Habits of *Sitta canadensis*.—On the 28th of October last in the Northern Adirondacks I noticed that the Red-bellied Nuthatches seemed to be feeding exclusively on the seeds of the black spruce. After that I watched them for a number of days, and although they were abundant, I did not see them feeding on anything else. Alighting on a bunch of cones at the extremity of a bough, the Nuthatch would insert its bill between the scales of a cone and draw out a seed. Then flying to a horizontal bough near by it would detach the wing which adheres to each seed, letting it fall to the ground, swallow the seed, and fly back for another. Frequently a good many trips would be made between the same bunch of cones and the same bough where the wing was separated from the seed.

The Red-bellied Nuthatches were very abundant — much more so than the White-bellied — and it was an interesting sight to watch them feeding in this way. One specimen, killed while feeding, contained no food but the seeds of the spruce. I did not observe the White-bellied Nuthatch make use of this supply of food. — C. K. AVERILL, JR., *Bridgeport, Conn.*

Spotted Eggs of *Parus gambeli*.—In the spring of 1882, when living at Gold Run, in the Belt Mountains, I noticed a pair of Mountain Chickadees flitting about a knot-hole some fifteen feet up in a cotton-wood tree.

Thinking the birds might have selected the place for their nesting I visited it several times, usually finding at least one of the birds about, and sometimes getting within arm's length of both of them. On June 23, just after a blustering snowstorm, I went to the place and found the upper part of the knot-hole drifted in with snow, and the birds absent. Cutting open the hole, which had evidently been enlarged somewhat by one of the smaller Woodpeckers, and was about ten inches deep, there lay six eggs on a thin matting of rabbit's hair. The eggs are white, all distinctly marked with pale reddish brown spots, quite numerous and more or less confluent about the larger end, and gradually diminishing in numbers toward the smaller. The largest egg measures 17.5×12 mm., the smallest 16×12 mm. On comparison with four eggs of *P. atricapillus septentrionalis*, obtained on the North Fork of the Mussel-shell River, they prove considerably more elongated, with slightly rounder ends and larger, much paler, spots. The largest egg of the last-mentioned bird is 16.5×12.5 mm., the smallest 15.5×12.5 mm. — R. S. WILLIAMS, *Great Falls, Montana*.

What Birds indicate Proximity to Water, and at what Distance? — Mr. William Lloyd, in his explorations in the arid region of Western Texas, has made some highly important observations, the results of which cannot fail to be of the utmost value to travellers on our southwestern plains, where water is scarce and difficult to find. Mr. Lloyd writes: "During the past summer, I have been investigating an important question which occurred to me about four years ago, namely, What birds indicate the presence of water in their neighborhood? Of course any statement on the subject should be proved by a number of facts, based on experiments in different localities. Three times this summer I have camped from simply seeing certain birds, and on hunting for water have found it in each case. As certainties I can give the following species, with the greatest distance at which each occurs from water.

Cardinal	1 mile.
Warblers (including Chat)	1 mile.
Vireos	2 miles.
Mockingbirds	$2\frac{1}{2}$ to $3\frac{1}{2}$ miles.
Blue Grosbeak	" "
Orchard Oriole	3 miles.
Bullock's Oriole.	3 miles.
Nonpareil	3 miles.
Carolina Dove	3 to 5 miles.
Black-capped Titmouse.	4 miles.
Texas Cardinal.	6 miles.

This only applies to summer, and will not hold in winter or during migrations. I have been constructing this list since the summer of 1883; and also have particularly noted what birds drank, and how often, in Dec.-Jan., 1884-1885; Nov.-Dec., 1885; and Jan., 1886." — C. HART MERRIAM, *Washington, D. C.*

CORRESPONDENCE.

[Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.]

Propatagialis cucullaris.

TO THE EDITORS OF THE AUK:—

Dear Sirs:—Having given space in 'The Auk' to Dr. Shufeldt's rejoinder to an article of mine in another publication, which probably few of the readers of 'The Auk' have had the opportunity to familiarize themselves with, will you kindly allow me to say a few words in my defense, the more so, as Dr. Shufeldt has told this new class of readers that my first paper was "a rather acrimonious protest" in which I "so misrepresented the entire matter," etc. I regret very much that the editor of 'Science' did not think Dr. Shufeldt's reply fit for publication, since, had it appeared in that journal, I should have saved myself the trouble of answering his irrelevant rejoinders and counter-criticisms. The readers of 'Science' who knew the previous articles would also know how to correctly place his reply, and would be competent judges whether I had "misrepresented the whole matter" or not. It is also characteristic that Dr. Shufeldt did not make this accusation in the reply intended for 'Science,' but in the part prepared for 'The Auk' only. To this accusation I can only say, read the original articles and judge! In every instance I quoted Dr. Shufeldt *verbatim*. Besides there was no room for misrepresentation.

The whole sum and substance of the controversy is this: In 'Science' for June 24, 1887, Dr. Shufeldt announced what he took to be the discovery of an unknown muscle in the bird's wing, which he thought without a name, and which he therefore named *dermo-tensor patagii*, alleging that it had a special taxonomic value. My article in 'Science' for August 5, 1887, demonstrated that Dr. Shufeldt was entirely wrong in all his suppositions. I proved that this muscle was not confined to the *Passeres acromyodi*, but that it is equally well developed in Parrots and Woodpeckers; I proved that the muscle, so far from being unknown and unnamed, was well known in literature, and had not one but many names; and I proved that Dr. Shufeldt's allegation that the late Professor Garrod in particular was ignorant of the existence of this muscle, was equally unfounded.

I did not blame Dr. Shufeldt for not knowing these things, and, surely, I did not exhibit any "acrimony." I did not feel any then, and I do not feel any now. I only stated scientific facts, killed a false notion at its birth, and assigned '*dermo-tensor patagii*' to the limbo of synonyms. That was my entire crime!

I repeat, I did not blame Dr. Shufeldt for not knowing the literature

on this point, in fact, I did not then blame him at all, for I knew very well the disadvantages under which he labors, and which he justly pleads as extenuating circumstances. But when a student knows these difficulties himself, he has no excuse for rushing into print with his so-called discovery because he does not find this small muscle mentioned in a few English works, either too general or too special for the purpose. There was no need of hurrying the publication of such half-digested matter; if Dr. Shufeldt had inquired from one of his many correspondents who had access to the literature, and had postponed the heralding of the discovery until its importance had been confirmed, he might have saved himself considerable trouble and the mortification of a correction.

Now only a few words in reply to Dr. Shufeldt's letter in 'The Auk' (1887, pp. 353-356), and in order to be brief and to avoid repetitions, I shall take up his points *seriatim*.

It is curious to hear Dr. Shufeldt call the authorities whom I quoted "dissectors, as a rule, who did not especially look into the structure of the birds with the view of determining their affinities." Now the fact is quite the reverse, and by his remark Dr. Shufeldt clearly proves that he does not know these men, nor their works. It is sufficient to state that most of them are comparative systematists whose aims and achievements in this latter direction make Dr. Shufeldt appear a mere "dissector" by comparison.

Dr. Shufeldt in speaking of my defense of Professor Garrod says: "I am, as it were, directly charged with doing Professor Garrod a 'great injustice', and 'gravely misrepresenting' him, *as if* that were the *sole aim* of my original description" (*italics mine*). Suffice it to say that the "*as if*" is a pure insinuation. I have made no such allusion nor have I hinted at Dr. Shufeldt's *aim*. There is not a word to indicate that I thought Dr. Shufeldt misrepresented Garrod willingly or knowingly. He did misrepresent him nevertheless.

That Dr. Shufeldt failed to find a trace of *propatagialis cucullaris* in two specimens of *Tyrannus tyrannus* while I myself discovered distinct muscular elements, shows very plainly the unstable character and comparative unimportance of this muscular slip.

We now come to the second half of Dr. Shufeldt's reply, which may safely be characterized as an attempt to raise sufficient dust to conceal the real questions at issue, for he takes nearly a whole page of the valuable space of 'The Auk' to criticise such parts of my drawings as have no bearing upon the discussion. But as he has raised these side-issues, and finally comes back to them in the finishing paragraph of his reply with a somewhat supercilious allusion, I am obliged to ask some space in order to demonstrate how utterly devoid of foundation his allegations are. First he makes some remarks in regard to the scale to which my figures were stated to have been drawn, viz., one third natural size. Any "intelligent" reader will at once see that this statement is due to a clerical, or a typographical error. I received no proof of the figures illustrating my original article nor of the explanatory text accompanying them. Of course when I

saw the number of 'Science' containing them I immediately discovered the lapsus, but I had sufficient confidence in the readers of that journal to believe that not a single one of them could be deceived by it, and consequently I deemed it unnecessary to formally correct such a trifling matter. The original drawings were natural size, and on the paper I marked them to be reduced to one third, hence, of course, the mistake. But I will here emphasize that this is the *second time* that Dr. Shufeldt, in a controversy with me in this journal, has taken advantage of an *obvious* error of this kind. There are at least half a dozen other typographical errors in that paper of mine, for my return proofs evidently did not reach the printer in time, and it is only a matter of surprise to me that Dr. Shufeldt did not avail himself of the opportunity to add another valuable page to his reply.

His remark that I have represented the "tips of the shoulder in close anatomical connection with the *side of the middle of the neck*" is too ridiculous to be seriously meant. Or, has really Dr. Shufeldt overlooked that the mesial line is designated by a double line indicating the skin which is left in position on the right side of the body, while the single line to the extreme right represents the contour of the neck? Surely, Dr. Shufeldt is right in the last paragraph of his letter in exclaiming "let us, gentlemen, have intelligent drawings," but allow me to supplement it by praying: "Let us also have intelligent readers!"

I hardly know how to characterize Dr. Shufeldt's remark that I have represented the *biceps* muscle as "inserted into the *extensor metacarpi radialis longus*," etc. In view of this extraordinary statement I shall have to modify my above prayer somewhat, and say: "let us have *moderately* intelligent readers, at least!" or "Let us have readers who are willing to open their eyes!" Anybody with eyes and willing to see, will find upon examining my fig. 2, that the muscular slip which "is inserted into the *c. m. r. l.*, between the *tenso. patagii brevis* and the humerus" is not lettered *b*, but the muscle lying behind it and partly concealed by it! The tendon to which Dr. Shufeldt refers is not lettered at all!

The above may be sufficient to lay the dust. Aside from the consideration that his criticisms of my drawings are unfounded, to say the least, Dr. Shufeldt ought to have carefully avoided any allusion to unintelligent drawings,—for he who lives in a glass house should not indulge in throwing stones, according to an old adage, the soundness of which may be indisputable even in New Mexico,—as will be perfectly demonstrated by the following interesting reflections. When Dr. Shufeldt made the figures to accompany his first paper ('Science,' June 24, 1887, figs. on p. 624) he still labored under the impression that *Rhamphastos* was figured by Garrod as the type of a passerine bird ("Garrod chose the wing of *Rhamphastos cuvieri* to illustrate the arrangement of the patagial muscles in the Passeres"). He copied this figure (fig. 1) and accordingly inscribed it ("... left wing of a passerine bird, *Rhamphastos cuvieri*" ...). He then drew the arm muscles of a Swallow (fig. 2) to match, showing his own discovery; but believing the *Rhamphastos* to be one of the Passeres he fell into the—to an avian anatomist—most unpardonable blunder

of representing the Swallows as having the *propatagialis brevis* inserted in the same way as the *Rhamphastos*, in other words, after the fashion of the picarian birds. Whether that drawing was sent to 'Science' by a mistake; or not, is of no consequence; the fact remains that a man, who is going to teach others all about the "taxonomic muscles" in birds, has prepared such a drawing and finished it so far that it could be reproduced by the regular photo-engraving process. I approve most heartily of Dr. Shufeldt's concluding sentence: *Yes, let us by all means have intelligent drawings!!*

Finally a few words in regard to the name of the much talked of muscular slip.

The only *rational* name of it is the one given by Fürbringer, viz., *pars propatagialis musculi cucullaris*. This is evidently an instance "where the name is five times as big as the muscle," which, "for the sheer sake of clearness and convenience," Dr. Shufeldt wants to lay aside as an abominable name bestowed by the "old anatomists." Here Dr. Shufeldt again proves his ignorance of Dr. Fürbringer and his works. Fürbringer is not one of the "old anatomists," he is one of the younger ones, and he is, moreover, the great reformer of myological nomenclature "for the sheer sake of clearness and convenience." The name given by him signifies that this muscle is only a patagial slip of *musculus cucullaris*, leaving nothing to be desired in regard to clearness and convenience, for, of course, in speaking of it Fürbringer does not use the whole name, but simply "*propatagialis cucullaris*," which is hardly longer than Dr. Shufeldt's "*dermo-tensor patagii*." The latter, however, is neither clear nor convenient, for surely *propatagialis longus* is the true *dermo-tensor patagii*, and not the slip of *cucullaris*, which in most cases is only a *dermo-tensor parapatagii*.

Washington, D. C., December, 1887.

LEONHARD STEJNEGER.

NOTES AND NEWS.

IN THE last number of the 'The Auk' (Vol. IV, p. 359) reference was made to the movement for the erection of a monument to John James Audubon in Trinity Cemetery, New York City. The movement has now become well organized, under the lead of a committee of the New York Academy of Sciences, consisting of Prof. Thomas Egleston of the School of Mines, Chairman, Dr. N. L. Britton of Columbia College, Secretary and Treasurer, and Prof. Daniel S. Martin of Rutgers Female College. As already stated (see p. 97 of this issue), a committee to coöperate with the committee of the New York Academy was appointed by the American Ornithologists' Union at its late meeting in Boston, consisting

of Dr. George Bird Grinnell, Chairman, and Messrs. William Dutcher and George B. Sennett. Committees in further aid of the work have been appointed by the Linnaean Society of New York, the Torrey Botanical Club of New York, and the Staten Island Natural History Association. Circulars soliciting subscriptions have already been issued by several of these Committees, a joint meeting of which will soon be held in New York, on a call for this purpose from the Committee of the New York Academy, to perfect plans for carrying on the work.

It is estimated that from \$6,000 to \$10,000 will be required in order to erect a monument worthy of the naturalist whose memory it is intended to commemorate. It is hoped that at least the larger of these amounts may be raised. The character of the monument will of course depend upon the amount of money secured. It is not desired that any individual subscriptions of large amount be sent, it being preferable to have the testimonial rest on contributions from as many as possible of the great naturalists' admirers, representing all sections of our country. Gifts from abroad will be welcomed, but the work is obviously and primarily for Audubon's countrymen. It is hoped that each of the three hundred and odd members of the A. O. U. will feel it a privilege to contribute, with as little delay as possible, to the fund. Contributions sent to the Treasurer, Mr. William Dutcher, 51 Liberty Street, New York City, will be duly acknowledged, and permanently recorded.

On the completion of the monument it is intended to make the unveiling a public ceremonial befitting the occasion, thus further appropriately recognizing the great services of Audubon as a pioneer in American ornithology. A list of the contributors to the monument fund might very fittingly be included in the permanent history of the undertaking, showing how widely and heartily his memory is still revered among not only ornithologists, but the public at large, and especially among naturalists who are not distinctively bird men.

MR. R. BOWDLER SHARPE, in 'The English Illustrated Magazine' for December, 1887, in an article entitled 'Ornithology at South Kensington,' gives some account of the ornithological collection in the British Museum, detailing with evident pride its rapid increase and generally satisfactory progress during the last fifteen years, and contrasting very favorably its present condition with its status in the old galleries of the British Museum at Bloomsbury, before the removal to the new quarters at South Kensington. The article is full of important suggestions bearing upon the care and general management of such collections, well worthy of consideration by those having them in charge. Unfortunately we have space to notice only a few of the many statements of interest. He wisely advocates the exhibition of birds in natural groups, mounted in characteristic attitudes, and with accessories giving some idea of the habits and manner of life of the species, the public, he believes, "infinitely preferring a few artistic and naturally mounted birds to whole rows of specimens on stands, without any explanatory labels to relieve the tedium of the conventional

mounting." Already thousands of specimens in the old collection have been unmounted and variously disposed of since the abandonment of "the time-honored tradition in the mode of mounting animals." As he well says, "every bird exposed in a glass case is doomed to destruction sooner or later, its fate being merely a question of time, as exposure to the light is certain to bleach the plumage and deteriorate the appearance of the specimen; . . . therefore the main zoölogical collections are preserved in cabinets and hidden from the light, and there is no reason why they should not be available for the purposes of study for many hundred years."

Mr. Sharpe describes in detail the series of the groups of British birds with their nests; the 'Index' collection, illustrating the osteology of birds, the structure and growth of feathers, the formation of the beak and feet in the principal forms of birds, etc., and the groups illustrating the hybridization of species in a wild state, and the variation of species under domestication.

During the last fifteen years, or since Mr. Sharpe was placed in charge, the bird department of the British Museum has advanced from a third-rate position to the first; the study collection has increased from 40,000 specimens to 200,000, and with the additions already promised and soon to be incorporated, will "reach the astounding number of 250,000." This, too, with very little encouragement from the Government towards the increase of the collection, its course in this respect contrasting, Mr. Sharpe claims, very unfavorably with that of other nations. This great increase is due to "the private collections, which formerly eclipsed the national one in value," having been given to the Museum. Among these are the Hume collection of nearly 85,000 Indian birds and eggs, and the American series of Messrs. Salvin and Godman, and Dr. Selater, "which doubled at one stroke the number of specimens in the Museum." Besides these the Wallace and Gould collections have been added, and Mr. Seebohm's splendid collection of Palaearctic birds and eggs has been promised, while Captain Wardlaw Ramsay has announced his intention of presenting the immense series of Asiatic birds collected by the late Marquis of Tweeddale, numbering 40,000 specimens. Mr. Sharpe closes with an enthusiastic appeal to Englishmen everywhere to render still more perfect the already unrivalled collection under his charge.

MR. HENRY SEEBOHM has issued a prospectus of a work on 'The Geographical Distribution of the Charadriidæ (Plovers, Sandpipers, and Snipes, etc.).' In referring to this important announcement 'Nature' adds the following pertinent comment: "The unrivalled collection of Wading Birds in Mr. Seebohm's possession supplies the material for this work, and the volume will undoubtedly be one of great interest to ornithologists. Mr. Seebohm's ideas on nomenclature, the influence of the Glacial epoch on the migration of birds, and kindred subjects, are always original, and this new work of his will open, according to the prospectus, with an introduction setting forth his latest opinions. There is also to be given

'a complete synonymy from 1776 to the present time,' a rather appalling announcement, and one involving a vast change in ornithological nomenclature, as it will preclude the use of Linnæan names."

AT THE last meeting of the A. O. U. the Council, which has hitherto acted as a Publication Committee, relegated this function to a committee, consisting of the President and Secretary, Dr. Coues, Mr. Ridgway, and Mr. Brewster, most of whom were formerly on the Editorial Staff of 'The Auk,' which now consists of the editor and one assistant editor, the latter being Mr. C. F. Batchelder, of Cambridge, Mass. Being assured of efficient aid in the work of carrying on the journal, Mr. Allen consented to retain the editorship for another year, Mr. Batchelder kindly taking upon himself the greater part of the labor.

THE 'sensation of the hour' in certain scientific circles in New York City is an alleged discovery of great significance in the mechanism of birds' wings, whereby the extension of the wing in soaring is maintained automatically, or without the exertion of any muscular force on the part of the bird. That there is a mechanism for this purpose, resulting from the peculiar structure and relations of the bones of the fore-arm and hand, was long since discovered by anatomists, and is more or less well known to every well-informed ornithologist. But the 'discovery' now under notice is of a different character, having no relation to the bony framework of the wing, but to the primaries, and the alleged ability of the bird to so rotate the individual feathers at will as to practically turn them wrong side out! In other words, the inner vane of the first primary is brought from its normal position and function of underlying and supporting the second primary and made to *overlie* the second primary, — that is the first primary is imbricated upon instead of beneath the second, as it is normally seen — and in like manner the second upon the third, and the third upon the fourth, and so on. This position of the feathers, it is alleged, keeps the wing from closing, and enables the bird to soar indefinitely without experiencing fatigue. The fact that such a position of the feathers greatly weakens the power of support, by permitting the air to pass freely through the wing between the vanes of the primaries, and is besides so obviously contrary to the whole plan of a bird's wing as an effective instrument of flight, to say nothing of the well-known inability of the bird to thus arrange the primary quills, were points too trivial, in the opinion of the advocates of the new theory, to be entitled to serious consideration.

The matter was first made public in a communication by Professor W. P. Trowbridge, professor of engineering in Columbia College, to the National Academy of Sciences at its meeting held in November last in New York City. Professor Trowbridge stated that the discovery was made by his son, whose attention was directed to the matter by finding a Hawk he had just shot with the primaries overlapped in the manner above described, suggesting the inference that this arrangement of the

feathers was a provision for keeping the wing expanded in flight without muscular exertion on the part of the bird. Professor Newberry spoke in approval of the brilliant discovery and of its obvious importance, and, there being no ornithologists present, the discovery passed unchallenged, not only at the meeting, but into print, in the columns of 'Science' and elsewhere.

Some weeks later, a paper was announced on new discoveries in the mechanism of flight in birds, by Professors Newberry and Trowbridge, as a part of the evening's entertainment at the meeting of the New York Academy of Sciences for December 12. The title naturally attracted the attention of a number of ornithologists, who made it a point to attend the meeting. The communications covered, in a general way, the whole subject of the flight of birds, but the special point was, of course, the new discovery of the voluntary "interlocking of the primaries" so as to automatically prevent the closing of the wing during protracted flight. As soon as an opportunity was afforded, the ornithologists present quickly pointed out the utter absurdity and impossibility of the new 'discovery,' the speakers in opposition being Messrs. D. G. Elliot, J. A. Allen, and George B. Sennett. The arguments these gentlemen advanced failed to convince at least the principal advocate of the new theory, who declared, with some warmth, that he "was not a fool," and accepted the challenge to demonstrate by dissections all that he had claimed, including the ability of the bird to rotate and interlock the primaries. Accordingly the announcement card for the meeting of December 19 contained the following: "Prof. W. P. Trowbridge will exhibit wings, showing the tendons, as claimed, for the flexion, extension, and rotation of the primaries." The New York ornithologists were accordingly on hand, some of them provided, as well as Professor Trowbridge, with fresh preparations of birds' wings, to witness the promised 'demonstration.' Professor Trowbridge's exposition of the well-known muscles of flight and their functions was entirely successful, but his claim of showing also muscles capable of rotating the primaries so as to reverse their usual mode of imbrication was challenged by the ornithologists present, and finally this part of the 'demonstration' was abandoned, and the question at issue reduced to the discovery of a new muscle in the manus, having the function to open and close the primaries — "a muscle unknown" to ornithologists or anatomists, and hitherto undescribed. The muscle in question being the well-known *m. interosaeus palmarum*, comment on the new point would be superfluous. He still claimed, however, in his closing rejoinder, that birds had the power of interlocking the primaries, as he originally maintained. This, with the peculiar summing of the controversy at the close of the meeting by the President (Professor Newberry) 'from the chair' renders it highly probable that the ornithologists will re-open the subject at the next meeting of the Academy. The participants in the discussion at the second meeting, in addition to the two gentlemen already named, were Messrs. Allen, Elliot, Sennett, Dr. Holder, and Mr. E. E. Thompson, of Toronto, Canada.

THE following extract from a private letter written to Mr. W. E. D. Scott, gives interesting information respecting the destruction of Herons and other birds for their plumes about Punta Rassa, Florida:—"From personal observation in the immediate vicinity of Punta Rassa, I can verify your account of the great decrease in the numbers of the birds since I went there in 1883. At that time it was a pleasure to sit on the piazzas of the telegraph station and watch the long flights of Herons, Pelicans, and Cormorants pass up the harbor on the way to their roosting places in the late afternoons; and at all times of the day some or all of these birds were to be seen in greater or less numbers. Each and every one of the small islands in the harbor within sight of our place was a nesting and roosting place for the Herons, Pelicans, and Cormorants and other birds at that time. In the spring of that year (1883) Isidore Cohnfeld, of New York, sent an agent to Punta Rassa, a Mr. Kornfeld, with a big lot of guns and ammunition, and he was the first one to inaugurate the crusade against the birds after my arrival there. Kornfeld died at Punta Rassa, but he was replaced by another agent, guns and ammunition were distributed liberally, and though the last agent, whose name I have forgotten, did not do much business, yet the slaughter was carried on from the start that had been made, and other parties reaped the benefit of Cohnfeld's plant. Shultz and I bought something near two thousand skins ourselves, a fact of which I have been rather ashamed ever since, but they came to us mostly in the way of trade, and we did not have any hunters in the field. That season satisfied me of the fate of the Herons unless a halt was made in the slaughter, and I talked against it, and tried to persuade some of the hunters to stop their shooting, but it had no effect. The usual answer was "others are doing it and I may as well get my share"; the same reason Johnson gave you. The following season, and in fact every season since then, the crusade has been kept up. Batty made his appearance there in the winter of that year, though his operations were confined more to the country south of Punta Rassa, but the next season he extended his business and had everybody shooting for him. Other parties were in the field also, and I received many letters from dealers in New York and Jersey City asking me to buy plumes for them, but I had had enough of it. Bird skins were taken at Myers in the stores in exchange for food and clothing, and the consequence was that during the spring preceding my departure from Rassa there was not a single bird nesting on more than one, possibly two, of the islands where before everyone of them had seemed to be overcrowded.

"I hope our next legislature will put a stop to this indiscriminate shooting. I have talked to our Senator from Key West, who is an old friend of mine, on the subject, and he is very much interested in it, and feels the necessity for some action in the matter at the next session of the legislature."